

EXHIBIT 4

U.S. Patent No. 6,721,705

Samsung Accused Products

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

<p>1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:</p>	<p>To the extent that the preamble is a limitation, Samsung is infringing, and has infringed, by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet comprising the elements of claim 1 listed thereafter.</p> <p>The Samsung products that act through the Android operating system in conjunction with Google Assistant and/or Samsung Bixby, as implemented on Samsung devices, hereinafter (the “Samsung Accused Products”), are Internet voice browsing systems for gathering information from web sites on the Internet.¹</p> <p>For example, the following exemplary documents provide support to demonstrate the Google Assistant Product practices this claim:</p> <p>Andrew Nusca, <i>How voice recognition will change the world</i> (Nov. 4, 2011), available at https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/.</p> <p>Gene Munster, Will Thompson, <i>Annual Digital Assistant IQ Test – Siri, Google Assistant, Alexa, Cortana</i> (Jul. 25, 2018), available at https://loupventures.com/annual-digital-assistant-iq-test-siri-google-assistant-alexa-cortana/.</p> <p>Extending the assistant (Jan. 29, 2019), available at https://developers.google.com/actions/extending-the-assistant.</p> <p>Voice Browsing (Jan. 29, 2019), available at https://www.w3.org/standards/webofdevices/voice.</p> <p>How Search organizes information (Jan. 29, 2019), available at https://www.google.com/search/howsearchworks/crawling-indexing/.</p> <p>For example, the following exemplary documents provide support to demonstrate the Samsung Accused Products practice this claim:</p> <p>Andrew Nusca, <i>How voice recognition will change the world</i> (Nov. 4, 2011), available at https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/.</p>
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¹ On information and belief, all Samsung products that act through the Android operating system in conjunction with Google Assistant and/or Samsung Bixby infringe the asserted claims of the '705 patent. These products include at least, but are not limited to, Samsung Galaxy S22 Ultra, Galaxy S22+/S22, Galaxy S21, Galaxy S10, Galaxy Z Fold3, Galaxy Z Flip3, Galaxy Tab S, Galaxy Tab A, Galaxy Watch4 and the Samsung SmartThings devices (collectively, the “Samsung Accused Products”). See <https://www.samsung.com/us/mobile/phones/all-phones/>; <https://www.samsung.com/us/mobile/tablets/all-tablets/>; <https://www.samsung.com/us/watches/galaxy-watch4/buy/>; <https://www.samsung.com/us/smartthings/>. On information and belief, Samsung has released different versions of the Samsung Accused Products and each of these products infringes through the use of Google Assistant at least since Google Assistant’s release in 2016 and/or Samsung Bixby at least since Bixby’s release in 2017. See <https://www.techrepublic.com/article/google-assistant-the-smart-persons-guide/>; <https://9to5google.com/2017/05/01/bixby-voice-assistant-launch-date/>. Discovery has not begun and Parus’s investigation into the accused products is ongoing. Parus reserves the right to update these contentions if more accused products are discovered.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Gene Munster, Will Thompson, *Annual Digital Assistant IQ Test – Siri, Google Assistant, Alexa, Cortana* (Jul. 25, 2018), *available at* <https://loupventures.com/annual-digital-assistant-iq-test-siri-google-assistant-alexa-cortana/>.

Extending the assistant (Jan. 29, 2019), *available at* <https://developers.google.com/actions/extending-the-assistant>.

Voice Browsing (Jan. 29, 2019), *available at* <https://www.w3.org/standards/webofdevices/voice>.

How Search organizes information (Jan. 29, 2019), *available at* <https://www.google.com/search/howsearchworks/crawling-indexing/>.

Winston Chen, Speaking to the Web with the Web Speech API (Aug. 17, 2017), *available at* <https://medium.com/samsung-internet-dev/speaking-to-the-web-with-the-web-speech-api-980d12d34244>.

Dieter Bohn, Here's what we know Samsung's Bixby assistant can do on the Galaxy S8 (Mar. 29, 2017), *available at* <https://www.theverge.com/2017/3/29/15097744/samsung-bixby-galaxy-s8-assistant-vs-siri-alexa-android>.

On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby "essentially works the same way" as the Google Assistant.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

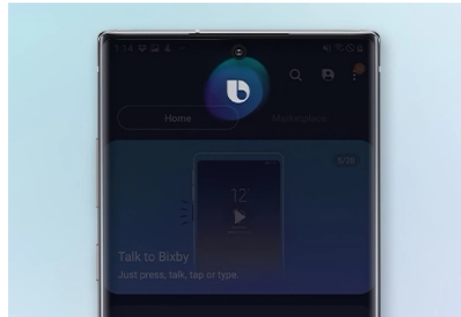
The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Bixby is an artificial intelligence (AI) system developed by Samsung Electronics to make device interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and deep learning to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a wide variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and Google Assistant. It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

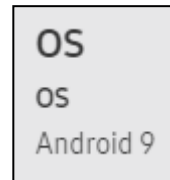
available at <https://www.businessinsider.com/bixby>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

Each Samsung Accused Product is a system for retrieving information from pre-selected web sites by uttering speech commands into a voice-enabled device. For example, the Galaxy S10 comes with Google Assistant and/or Bixby preinstalled. On information and belief, each Samsung Accused Product comes with Google Assistant and/or Bixby preinstalled.



See, e.g., <https://www.samsung.com/us/mobile/phones/galaxy-s/galaxy-s10-128gb-unlocked-sm-g973uzbaxaa/>

What you need

To use the Google Assistant, you'll need a device with:

- Android 5.0+ with at least 1.0GB of memory or
- Android 6.0+ with at least 1.5GB of memory
- Google app 6.13 or higher
- Google Play services
- 720p or higher screen resolution
- Device's language set to a language listed above

See, e.g., <https://support.google.com/pixelphone/answer/7172657?hl=en>

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Bixby learns what you like to do and works with your favorite apps and services to help you get more done. See **Bixby** on page 30.


See, e.g., Samsung Galaxy S10 User Manual at 1, available at

http://downloadcenter.samsung.com/content/UM/201909/20190914004452936/GEN_SM-G970U1_SM-G973U1_SM-G975U1_EN_UM_P_9.0_070219_FINAL_AC.pdf

Bixby

Bixby is a virtual assistant that learns, evolves, and adapts to you. It learns your routines, helps you set up reminders based on time and location, and is built in to your favorite apps. Visit samsung.com/us/support/owners/app/Bixby for more information.



TIP You can customize how the Bixby key functions. From Settings, tap  **Advanced features > Bixby key**.

The Bixby Home page displays customized content based on your interactions. Bixby learns from your usage patterns and will suggest content you may like.

- From a Home screen, swipe right or press the **Bixby** key.

Bixby Voice

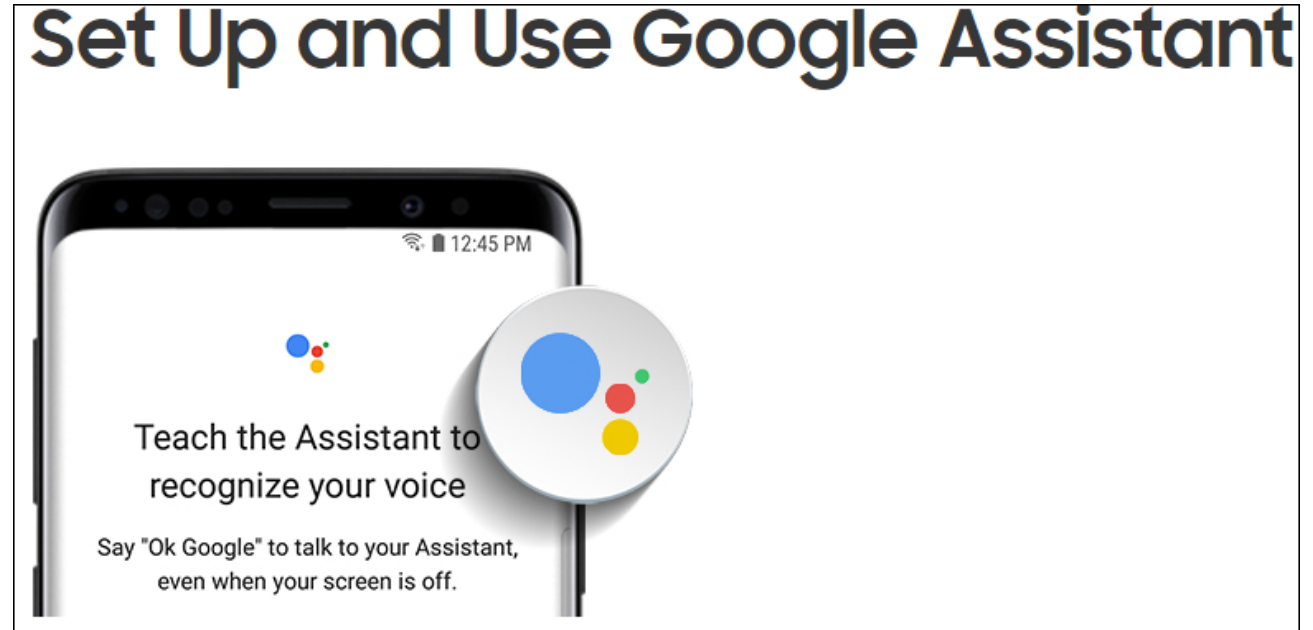
Bixby Voice allows you to use voice commands for opening apps, changing settings, entering text, and more.

1. Press and hold the **Bixby** key.
2. Say a command.
3. Release the **Bixby** key when you are finished speaking.

See, e.g., id. at 30.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Further, Samsung gives instructions for setting up and using the Google Assistant with the Samsung Accused Products. For example, Samsung provides instructions for setting up and using the Google Assistant with its Galaxy line of products. On information and belief, Samsung provides similar instructions for each Samsung Accused Product that implements Google Assistant.



See, e.g., <https://www.samsung.com/us/support/answer/ANS00077672/>.

Just say the words and your command will be granted - by Google Assistant. This AI feature will lend you a helping hand with practically everything on your phone. Have it set alarms for work or tell you the latest breaking news. With Google Assistant, the power is yours.

See, e.g., .id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Set Up Google Assistant

Don't be shy; Google Assistant is very friendly and easy to use. To open Google Assistant, touch and hold the **Home** button. Touch **GET STARTED**. Say "OK Google" three times to teach Google Assistant to recognize your voice and complete the setup.



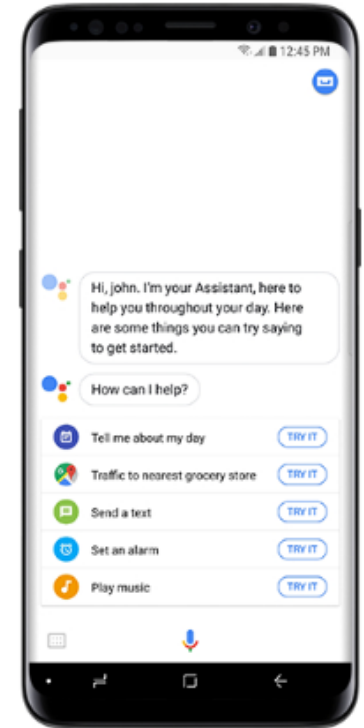
Use Google Assistant

See, e.g., .id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Use Google Assistant

Now that the ice has been broken, Google Assistant will help you whenever you want. To open Google Assistant, touch and hold **Home**. Touch the **Speak** icon to interact with Google Assistant, and then ask, "What can you do?" Swipe to the left to see a list of things Google Assistant can help with, like adjusting your Smart Home features.



See, e.g., .id.

Samsung also provides instructions for setting up and using Samsung Bixby with the Samsung Accused Products. For example, Samsung provides instructions for setting up and using Samsung Bixby with its Galaxy line of smart phones. On information and belief, Samsung provides similar instructions for each Samsung Accused Product that implements Samsung Bixby.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Set up Bixby for the first time



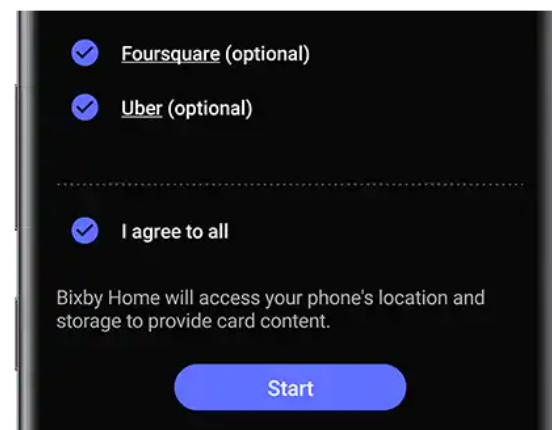
Bixby is a digital personal assistant on your Galaxy phone that automatically adjusts to your lifestyle and needs. Over time, Bixby will learn your habits and interests, so it can better assist you. But first, you'll need to set up Bixby for the first time.

See, e.g., <https://www.samsung.com/us/support/answer/ANS00076739/>.

Set up on One UI

To access Bixby Home, swipe right from the Home screen, and then tap **Agree**. If needed, sign into your Samsung account. Next, review the information and then tap **I agree to all**. Then, tap **Start**.

Now you can access Bixby Home by swiping right from the Home screen.



See, e.g., <https://www.samsung.com/us/support/answer/ANS00076739/>.

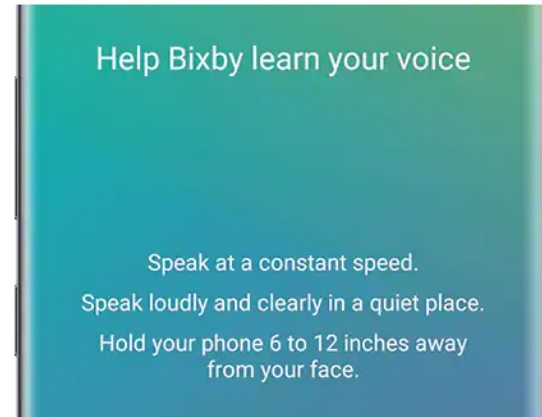
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Set up on Oreo OS

To access Bixby Home, swipe right from the Home screen. If needed, sign into your Samsung account. Tap **NEXT** and then select your desired language. Tap **CONFIRM**, tap **I have read and agree to all**, and then tap **NEXT**.

Follow the on-screen instructions, and then tap **NEXT**. From there, set up Bixby Voice Recognition, or tap **SKIP** to set it up later. Tap **START** to have a conversation with Bixby.

Now you can access Bixby Home by swiping right from the Home screen.



See, e.g., <https://www.samsung.com/us/support/answer/ANS00076739/>.

Further, Google indicates that the Google Assistant, as implemented on the Samsung Accused Products, will retrieve information from pre-selected web sites in response to user speech commands. For example, users can verbally request information and customize the sources from which said information is retrieved.

The Rise of Voice Activated Search

To understand how search works on digital assistants, it helps to understand a bit of their history

See, e.g., <https://pedestalsearch.com/seo-rank-google-digital-assistant/>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

How to customize your "Good morning" bulletin

You can use Google Assistant to give you a briefing on everything you need to know to start your day, from weather forecasts, calendar reminders, and a preview of your work commute. If you don't need all that, you can customize it to suit your needs.

1. Launch Google Assistant by **long pressing the Home Button**.
2. Press the **compass icon** in the top-right corner of the Google Assistant window.
3. Tap the **menu icon** in the top-right corner of the Google Assistant window.
4. Tap **Settings**

See, e.g., <https://www.androidcentral.com/how-set-up-google-assistant>.

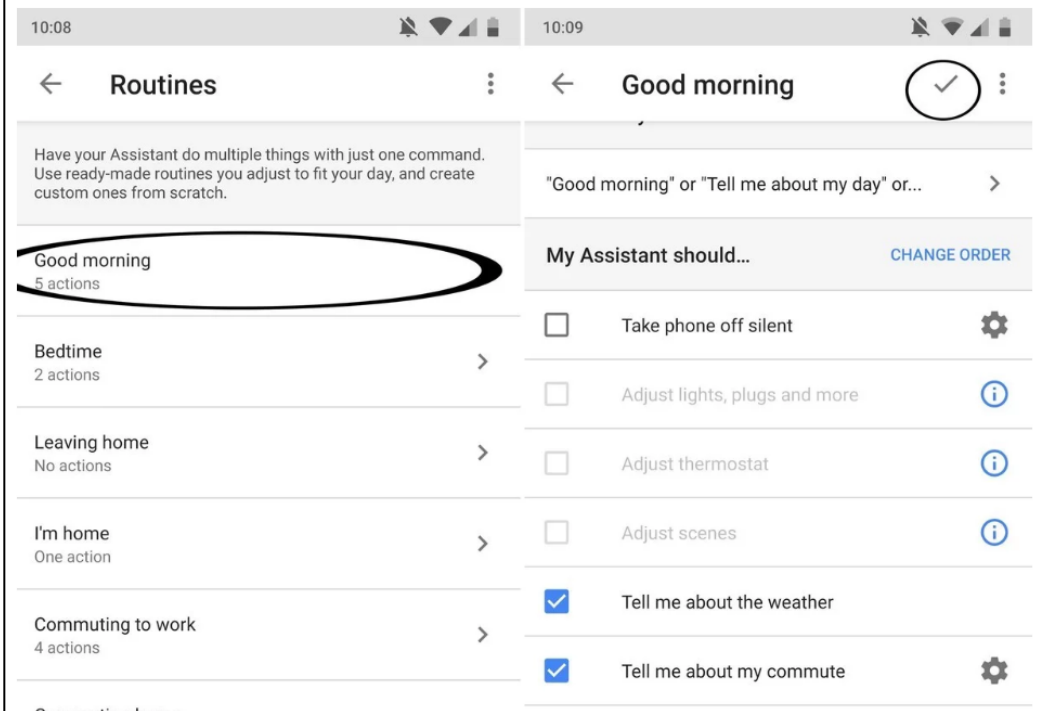
"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

5. Tap **Routines**

6. Tap **Good morning**

7. Tap the **checkboxes** to toggle what's included in your morning summary.

8. You can also toggle whether to end your summary with narrated news reports, music playlists, radio stations, audiobooks, podcasts or no audio at all.



See, e.g., id.

Once you've set everything up, all you need to do is say "Good morning" to Google Assistant.

See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

How to customize Google Assistant's news sources

Google Assistant can help you keep up to date on what's going on in the world with its narrated news service. It pulls radio news reports from reliable news sources which you can listen to after your daily briefing or by saying "OK Google, listen to news". If this seems like a valuable feature to you, you'll definitely want to customize your news sources.

1. Launch Google Assistant by **long pressing the Home Button**.
2. Press the **compass icon** in the top-right corner of the Google Assistant window.
3. Tap the **menu icon** in the top-right corner of the Google Assistant window.
4. Tap **Settings**
5. Tap **News**.

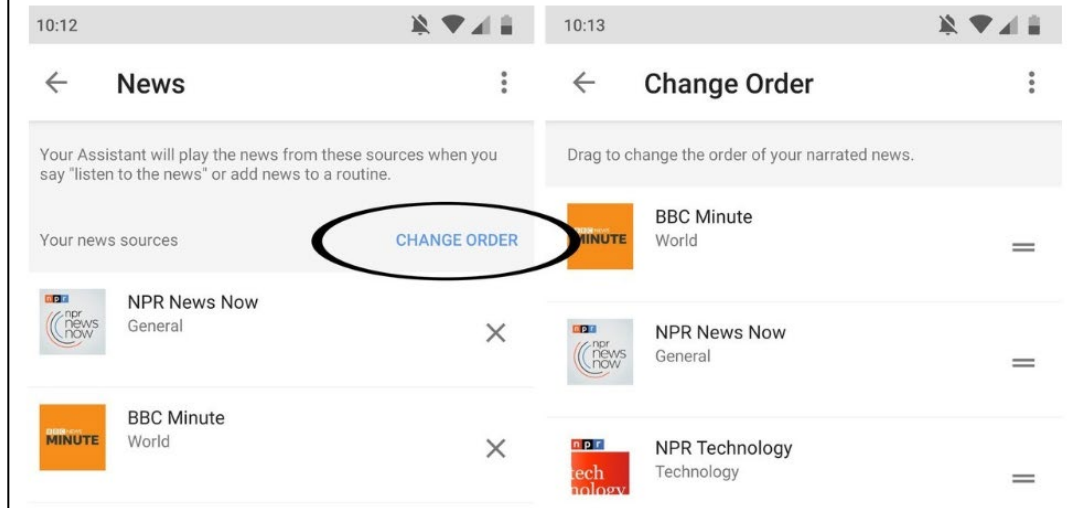
See, e.g., id.

6. Tap **Add news sources**
7. Swipe up to **scroll through the list of news sources**.
8. **Check the box** next to your desired news sources.

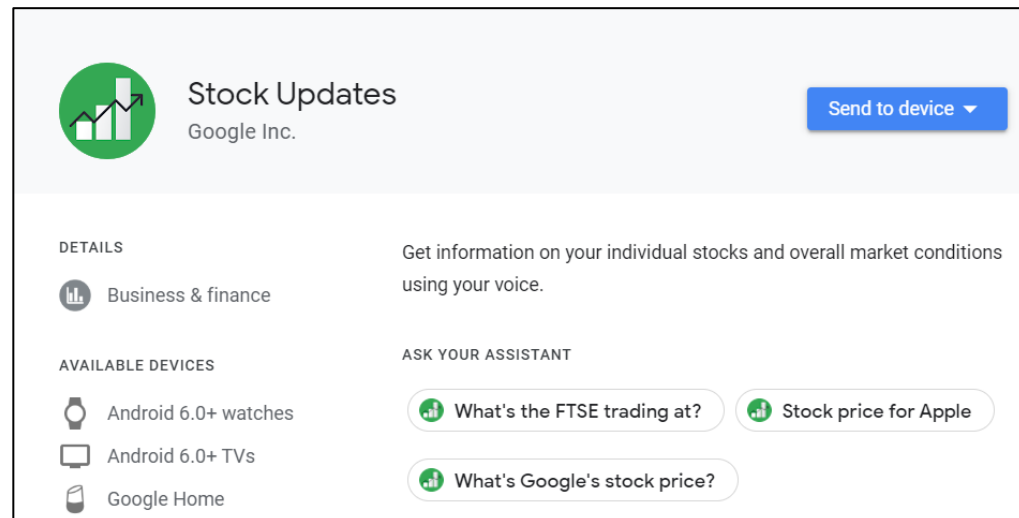
See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

9. Tap the **back arrow**.
10. Tap **Change Order**
11. Tap and drag the **news sources** in the order you want to listen to them.

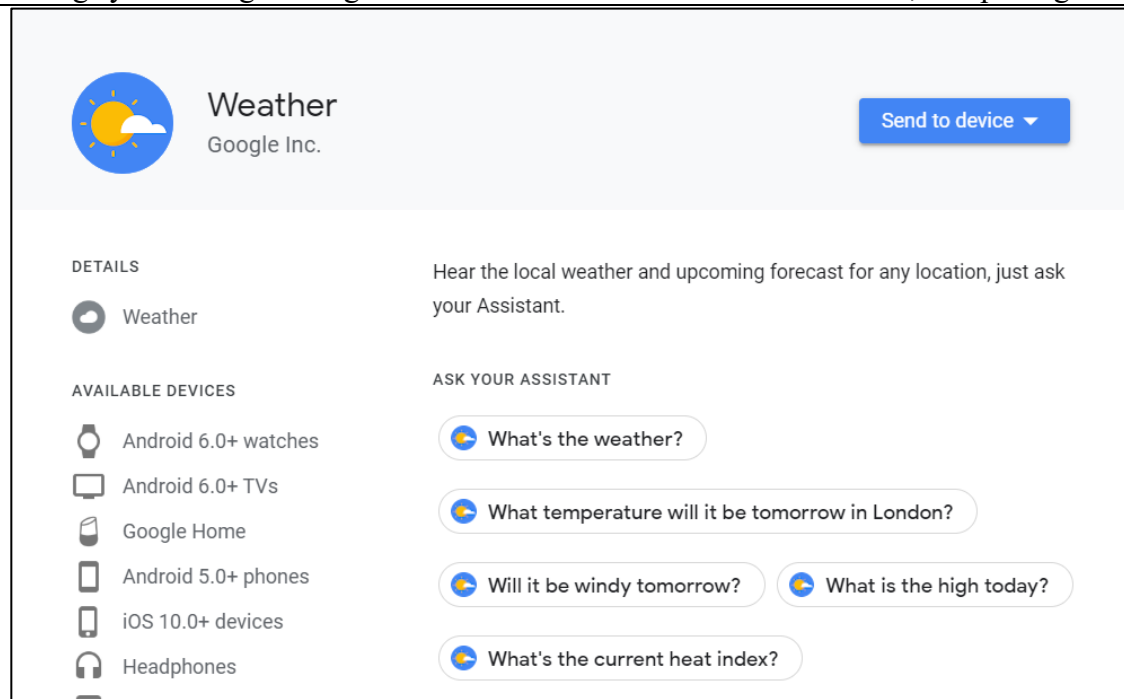


See, e.g., id.



See, e.g., https://assistant.google.com/services/a/uid/0000002776b0d637?hl=en_us.

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See, e.g., <https://assistant.google.com/services/a/uid/0000004d5731f294?hl=en-US>.

On information and belief, Bixby, as implemented on the Samsung Accused Products, will also retrieve information from pre-selected web sites in response to user speech commands.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

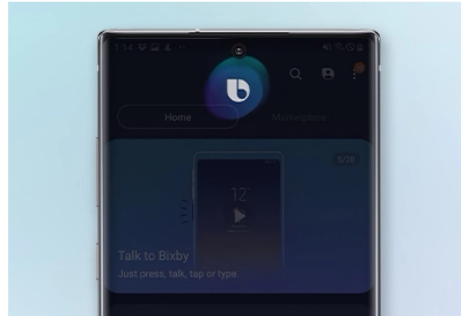
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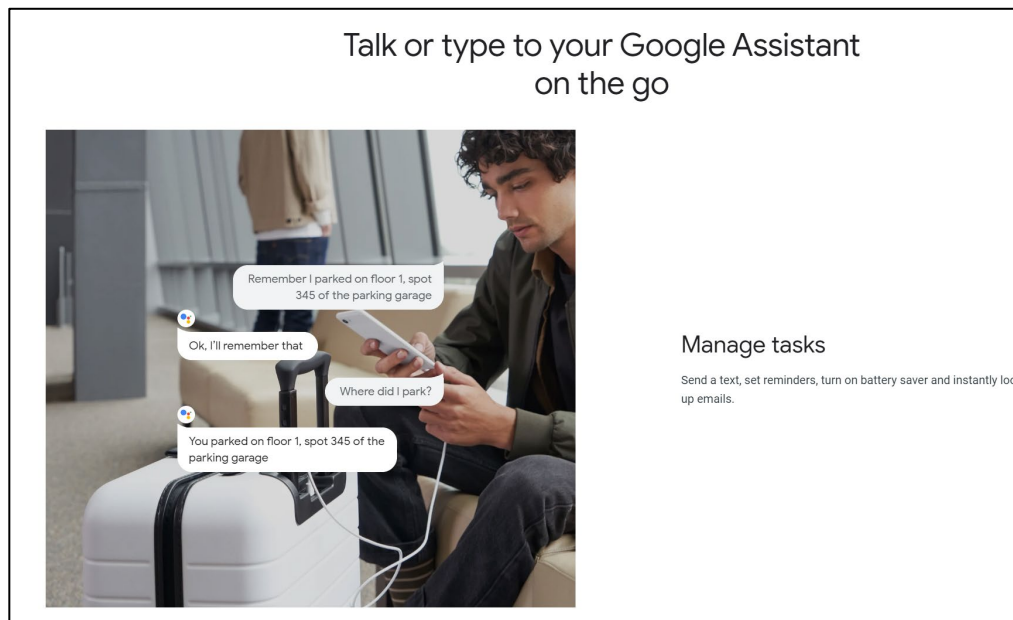
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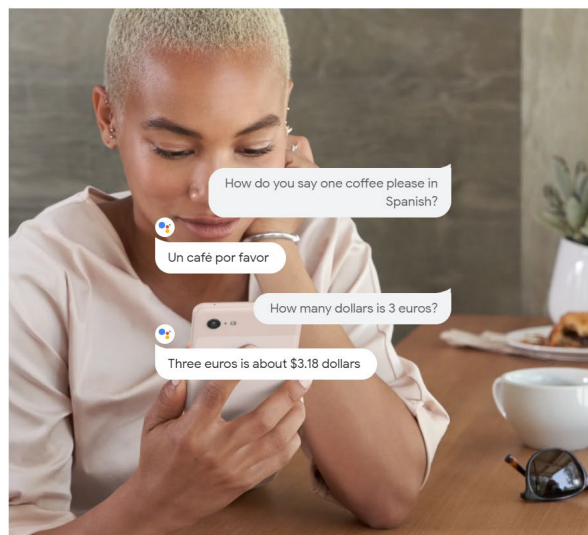
available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

The Samsung Accused Products retrieve information in response to speech commands.



See, e.g., <https://assistant.google.com/platforms/phones/>.

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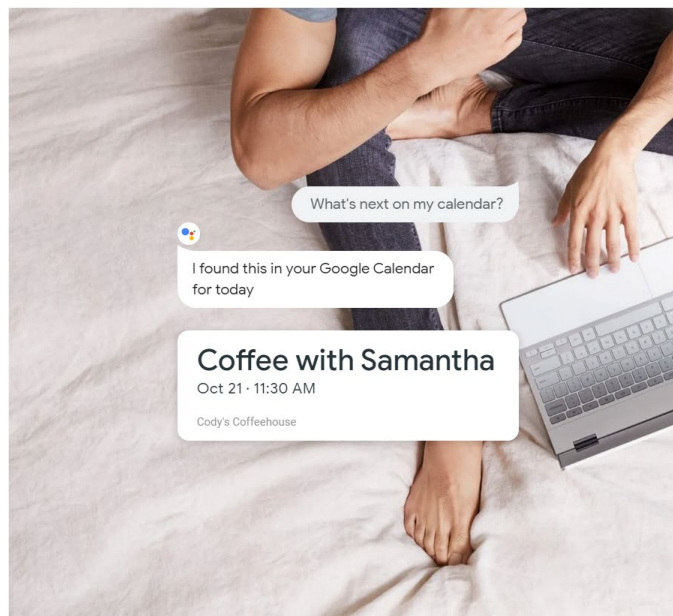


Get answers

Get real-time answers including the latest on weather, traffic, finance, or sports. Quickly find translations while you're traveling.

See, e.g., id.

Say "Hey Google" or press the Assistant Key

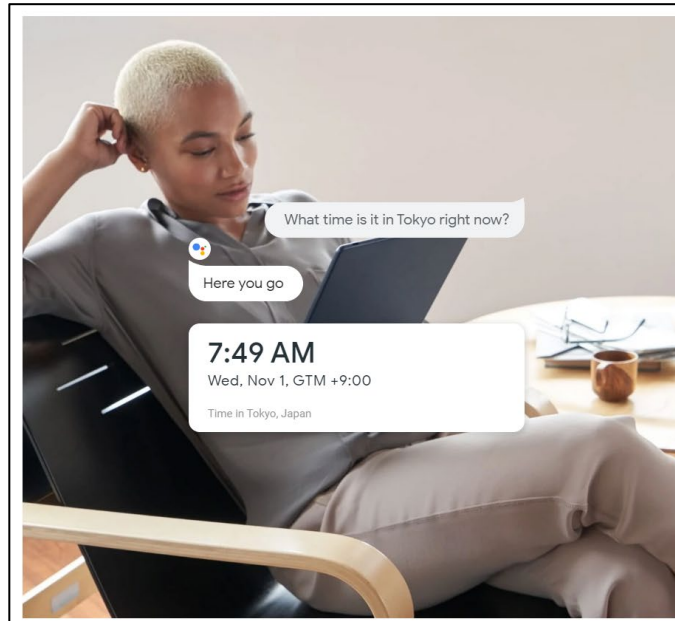


Manage tasks

Send an email, set reminders, manage your calendar, all without switching screens.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

See, e.g., <https://assistant.google.com/platforms/laptops/>.



Get answers

Ask questions and get answers to things you want to know. Just type, talk or circle.

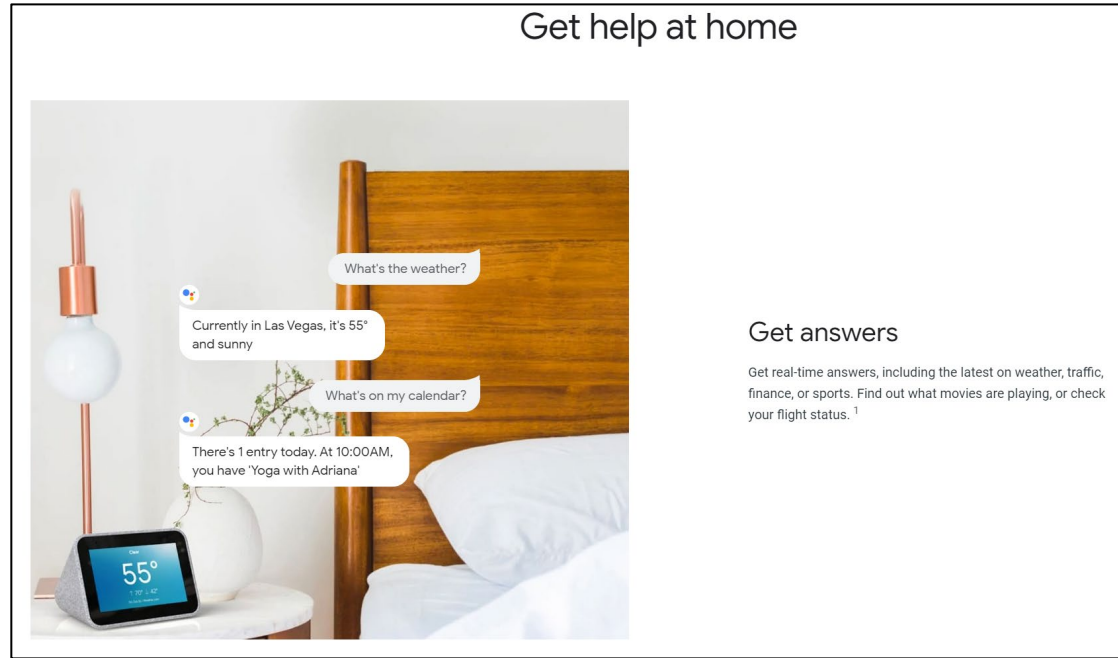
See, e.g., id.

The Google Assistant now in even more devices

With your Google Assistant in even more devices, it's easy to get things done. Just start with "Hey Google" to quickly get answers, manage daily tasks, and, of course, control your device or the rest of your smart home. Your Assistant can help free up your hands and time, so you can focus on the things that matter most.¹


See, e.g., <https://assistant.google.com/platforms/devices/>.

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See, e.g., id.

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	<div data-bbox="1016 123 1596 850">  <h2>Local Information</h2> <p>"What's the weather right now?"</p> <p>"How's the traffic to work?"</p> <p>"Give me directions to the airport"</p> <p>"Find the closest ATM"</p> <p>"What time does the post office close?"</p> <p>"Call the nearest pharmacy"</p> <p>"Will it rain tomorrow?"</p> <p>"Find movies playing nearby"</p> </div> <p><i>See, e.g.,</i> https://assistant.google.com/learn/.</p>
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"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



Quick answers

"How many ounces are in a pound?"

"What's 20% of 47?"

"How do you say hello in Chinese?"

"How much protein is in an egg?"

"What time is it in London?"

"What's on my schedule today?"

"When is sunset?"

"What is the S&P 500 trading at?"

See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



Music and News

"Play workout music"

"Play Today's Top Hits on Spotify"

"Tell me the latest news"

"Play NPR news summary"

"Listen to ESPN SportsCenter"

"Play rain sounds"

"Listen to Hidden Brain"

"Set volume to 3"

See, e.g., id.

On information and belief, the Samsung Accused Products in conjunction with Bixby retrieve information in response to speech commands.

Bixby Voice is easily activated. Users simply need to press and hold the dedicated hardware button on the side of the Galaxy S8, say "Bixby" or tap it on the Bixby Home screen to wake it up.

While most traditional smartphone-related tasks require touch activation, Bixby's multi-modality lets users control their phone using voice and touch controls interchangeably for maximized convenience. Utilizing natural language understanding, Bixby has the ability to adapt to the unique speaking style of the user. But if Bixby doesn't understand the user's command, it will ask for more information so it can complete the task, rather than giving up.

See, e.g., <https://news.samsung.com/global/a-new-way-to-interact-with-your-phone-bixby-the-galaxy-s8-intelligent-interface>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Speak naturally.

Bixby understands natural, conversational language along with context, like the email you're reading or the photo you just took. Simply talk the way you would to a friend to get what you need.

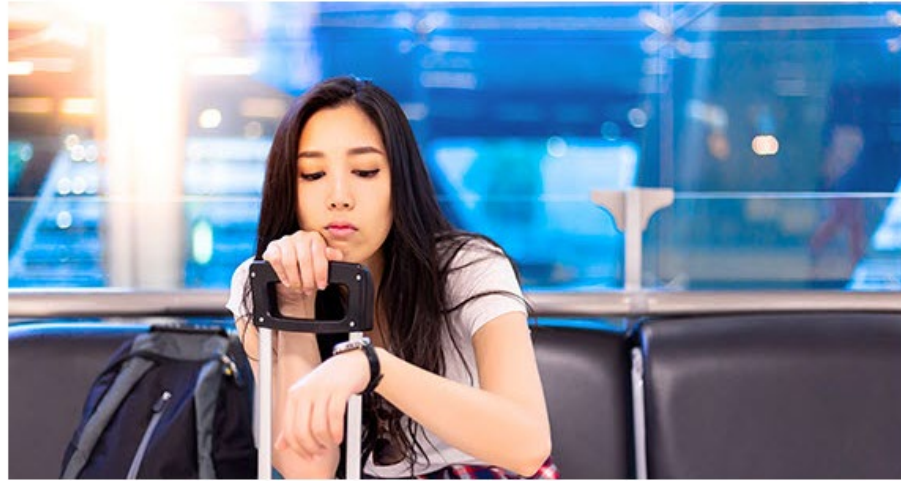
See, e.g., <https://www.samsung.com/us/explore/bixby/>

Make things happen.

Just say what you want, and Bixby will deliver. Sure you can ask for dinner reservation, but you can also call a ride all with your voice.

See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



"What's the status of flights from SFO to LAX?"

See, e.g., id.



"What's the time difference between Paris and Seoul?"

See, e.g., id.

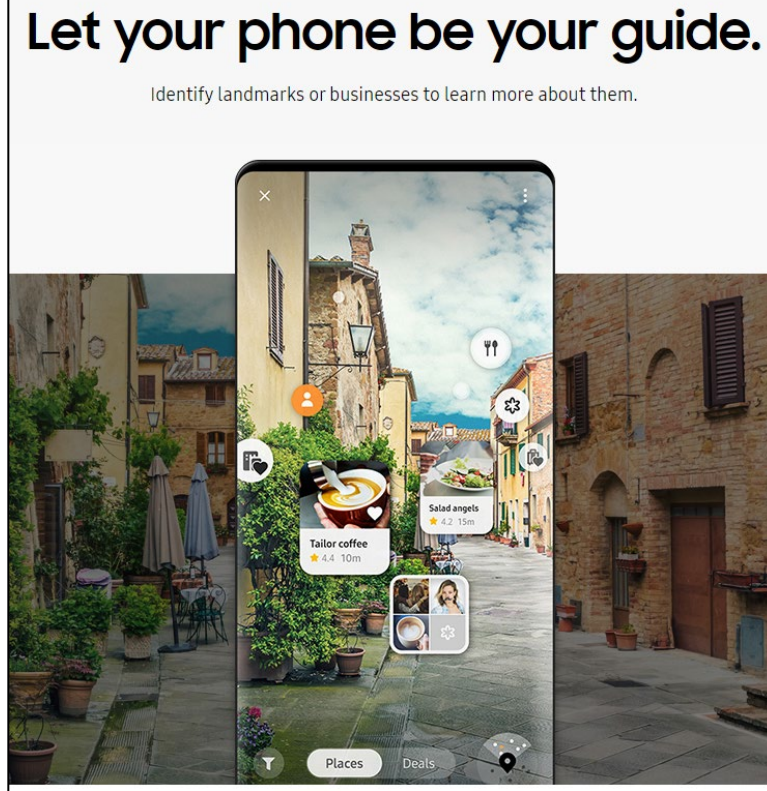
"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



"Give me the directions to 645 Clyde Ave."

See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/vision/>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

You can search the internet

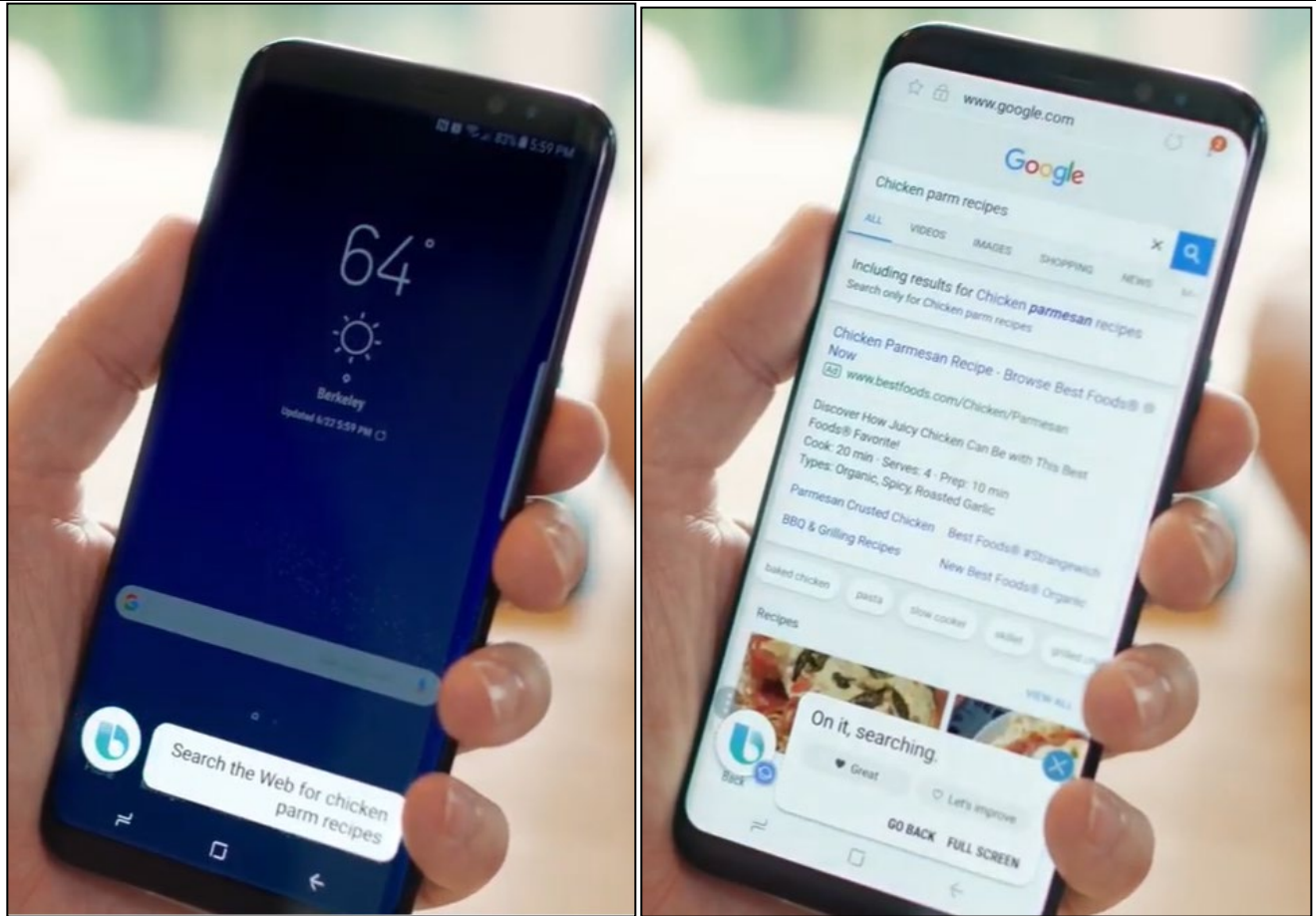
Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., <https://www.youtube.com/watch?v=x1SIMl-77TQ>

Further, the Samsung Accused Products retrieve information from websites that have been pre-selected by the user.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

How to customize your "Good morning" bulletin

You can use Google Assistant to give you a briefing on everything you need to know to start your day, from weather forecasts, calendar reminders, and a preview of your work commute. If you don't need all that, you can [customize](#) it to suit your needs.

1. Launch Google Assistant by **long pressing the Home Button**.
2. Press the **compass icon** in the top-right corner of the Google Assistant window.
3. Tap the **menu icon** in the top-right corner of the Google Assistant window.
4. Tap **Settings**

See, e.g., <https://www.androidcentral.com/how-set-up-google-assistant>.

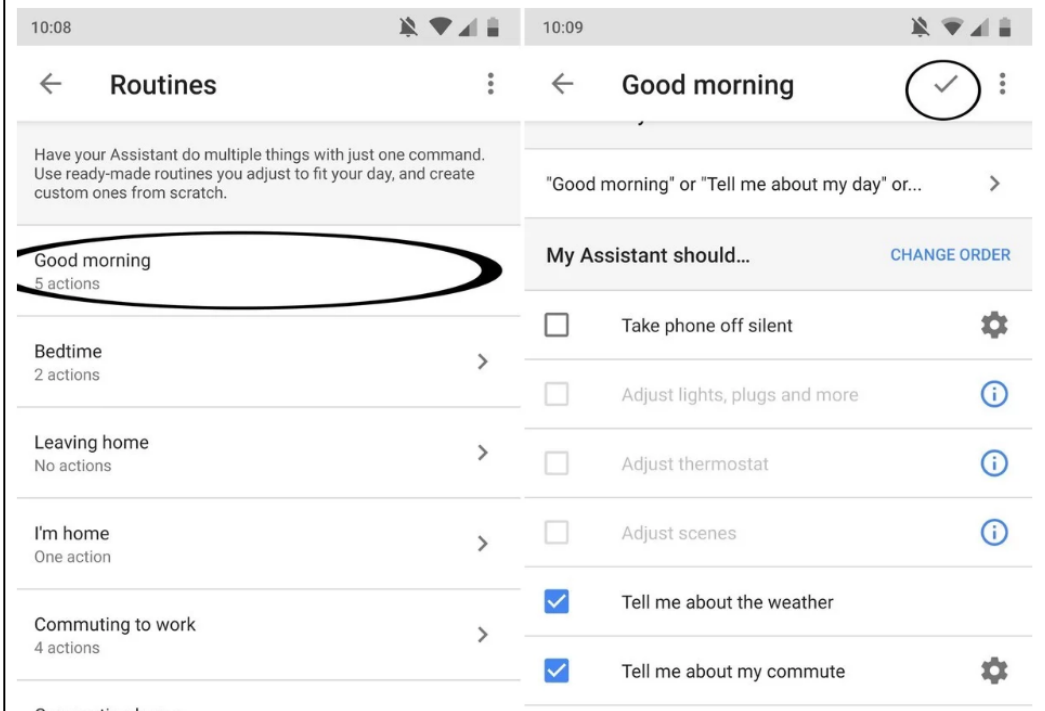
"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

5. Tap **Routines**

6. Tap **Good morning**

7. Tap the **checkboxes** to toggle what's included in your morning summary.

8. You can also toggle whether to end your summary with narrated news reports, music playlists, radio stations, audiobooks, podcasts or no audio at all.



See, e.g., id.

Once you've set everything up, all you need to do is say "Good morning" to Google Assistant.

See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

How to customize Google Assistant's news sources

Google Assistant can help you keep up to date on what's going on in the world with its narrated news service. It pulls radio news reports from reliable news sources which you can listen to after your daily briefing or by saying "OK Google, listen to news". If this seems like a valuable feature to you, you'll definitely want to customize your news sources.

1. Launch Google Assistant by **long pressing the Home Button**.
2. Press the **compass icon** in the top-right corner of the Google Assistant window.
3. Tap the **menu icon** in the top-right corner of the Google Assistant window.
4. Tap **Settings**
5. Tap **News**.

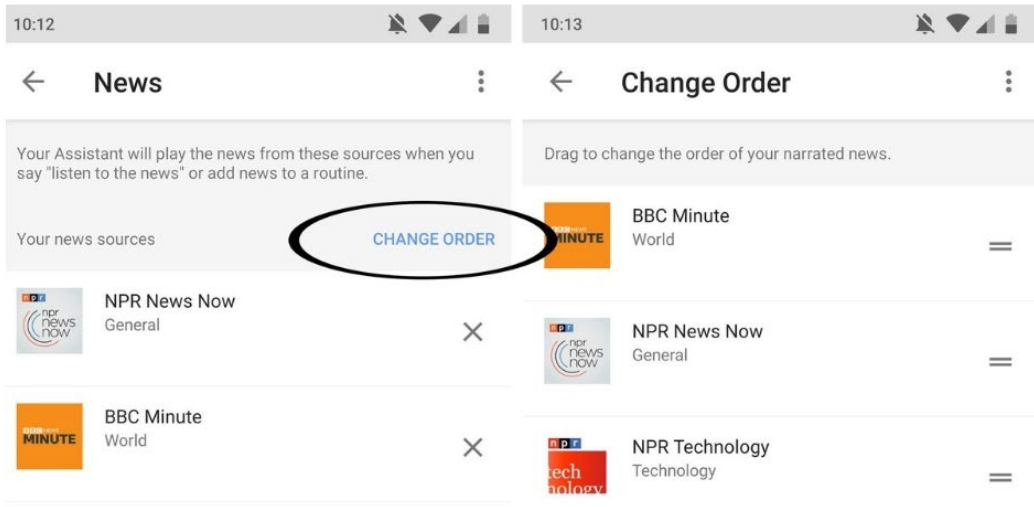
See, e.g., id.

6. Tap **Add news sources**
7. Swipe up to **scroll through the list of news sources**.
8. **Check the box** next to your desired news sources.

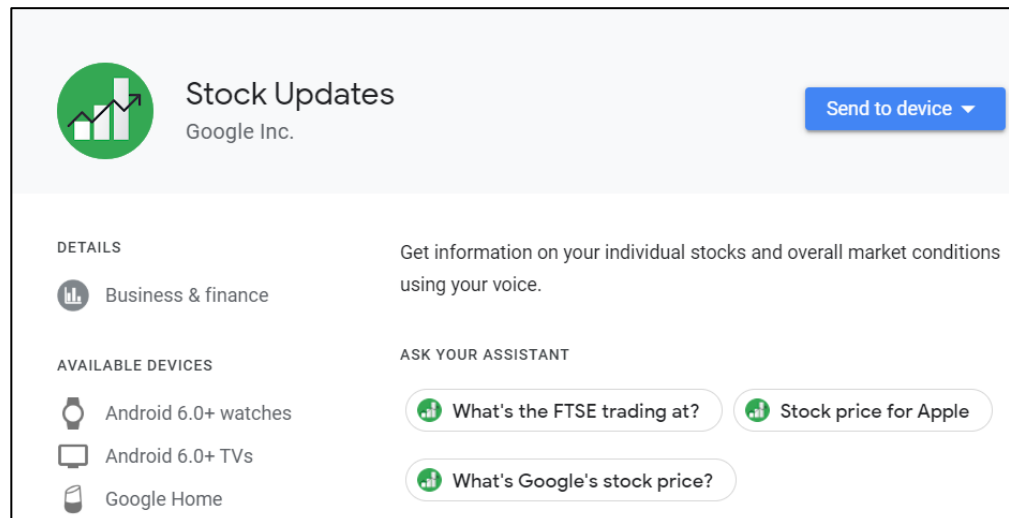
See, e.g., id.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

9. Tap the **back arrow**.
10. Tap **Change Order**
11. Tap and drag the **news sources** in the order you want to listen to them.

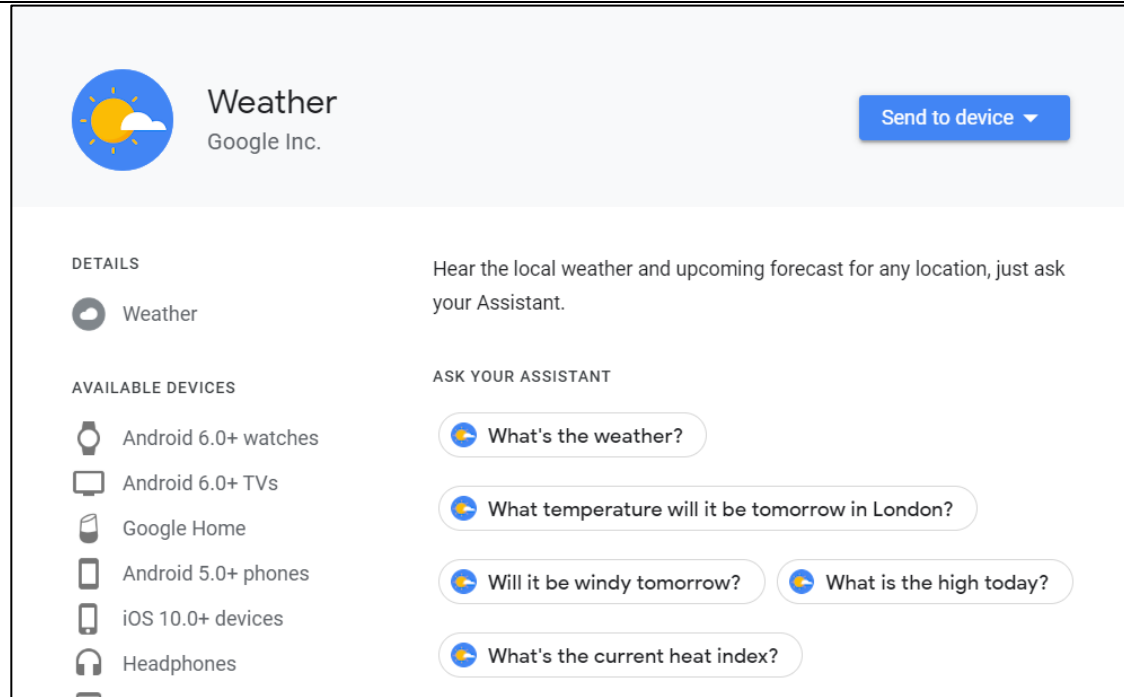


See, e.g., id.



See, e.g., https://assistant.google.com/services/a/uid/0000002776b0d637?hl=en_us.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., <https://assistant.google.com/services/a/uid/0000004d5731f294?hl=en-US>.

On information and belief, the Samsung Accused Products in conjunction with Bixby also retrieve information from websites that have been pre-selected by the user.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

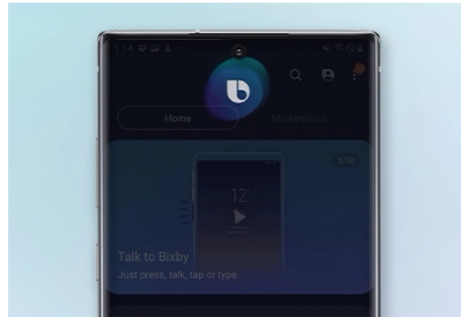
The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Bixby is an artificial intelligence (AI) system developed by Samsung Electronics to make device interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and deep learning to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a wide variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and Google Assistant. It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

available at <https://www.businessinsider.com/bixby>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

The Samsung Accused Products in conjunction with Google Assistant, and or voice search, also retrieve information from pre-selected websites as the websites have already been crawled and indexed.

News briefings technical requirements

We can onboard your news briefing to Google Assistant if it adheres to both our [eligibility and availability guidelines](#) and the following technical requirements:

- Expose a valid XML feed that meets [RSS 2.0 specifications](#) and [News briefings on Assistant specifications](#).
- Ensure [GoogleBot](#) can access your RSS news feed and media files, such as audio or video. In order to comply, all of your feeds and files must not require a login. Furthermore, none of them can use `robots.txt` or noindex robots meta tags to block GoogleBot.

See, e.g., <https://developers.google.com/news/assistant/newsbriefings/technical-requirements>.

Googlebot

Googlebot is Google's web crawling bot (sometimes also called a "spider"). [Crawling](#) is the process by which Googlebot discovers new and updated pages to be added to the Google index.

We use a huge set of computers to fetch (or "crawl") billions of pages on the web. Googlebot uses an algorithmic process: computer programs determine which sites to crawl, how often, and how many pages to fetch from each site.

See, e.g., <https://support.google.com/webmasters/answer/182072>.

Before you search, web crawlers gather information from across hundreds of billions of webpages and organize it in the Search index.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

See, e.g., <https://www.google.com/search/howsearchworks/crawling-indexing/>.

The crawling process begins with a list of web addresses from past crawls and sitemaps provided by website owners. As our crawlers visit these websites, they use links on those sites to discover other pages. The software pays special attention to new sites, changes to existing sites and dead links. Computer programs determine which sites to crawl, how often and how many pages to fetch from each site.

See, e.g., id.

When crawlers find a webpage, our systems render the content of the page, just as a browser does. We take note of key signals – from keywords to website freshness – and we keep track of it all in the Search index. The Google Search index contains hundreds of billions of webpages and is well over 100,000,000 gigabytes in size. It's like the index in the back of a book – with an entry for every word seen on every web page we index. When we index a web page, we add it to the entries for all of the words it contains.

See, e.g., id.

With the Knowledge Graph, we're continuing to go beyond keyword matching to better understand the people, places and things you care about. To do this, we not only organize information about webpages but other types of information too. Today, Google Search can help you search text from millions of books from major libraries, find travel times from your local public transit agency, or help you navigate data from public sources like the World Bank.

See, e.g., id.

Like Siri, you can ask Google Assistant general questions. Unlike Siri, you'll likely find that Google can handle a wider range of questions than Siri can. That's because Google Assistant taps into Google's web-wide search results each and every time you search, making it more comprehensive.

See, e.g., <https://searchengineland.com/google-assistant-guide-270312>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Google's goal

Across town, Google is also pursuing voice recognition through the development of its own system. During a visit to the company's office in New York's Chelsea neighbourhood, speech technology chief Mike Cohen told me that the company has been working in the area for seven years, primarily because of its utility in the mobile space — "the killer app for speech technology", as he describes it.

"Google's mission is to organise the world's information and make it easily accessible," he said. "Turns out [that] a lot of the world's information is spoken."

See, e.g., <https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/>.

"Google's mission is to organise the world's information and make it easily accessible," he said. "Turns out [that] a lot of the world's information is spoken."

Google, of course, is not merely the company behind its namesake search engine for the web, but also behind the Android mobile operating system, which appears on smartphones, tablet computers and its Google TV product. Like Microsoft, it too had a free 411 service, GOOG-411, that it launched in 2007. (It discontinued the service in late 2010.) And while it hasn't made any formal announcements in the automotive space, its mobile OS has been used in a number of aftermarket infotainment products for cars.

See, e.g., id.

On information and belief, the Samsung Accused Products in conjunction with Bixby also retrieve information from pre-selected websites that have already been crawled. For example, the Samsung Accused Products in conjunction with Bixby utilizes Google's search functionality to respond to user requests.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

You can search the internet

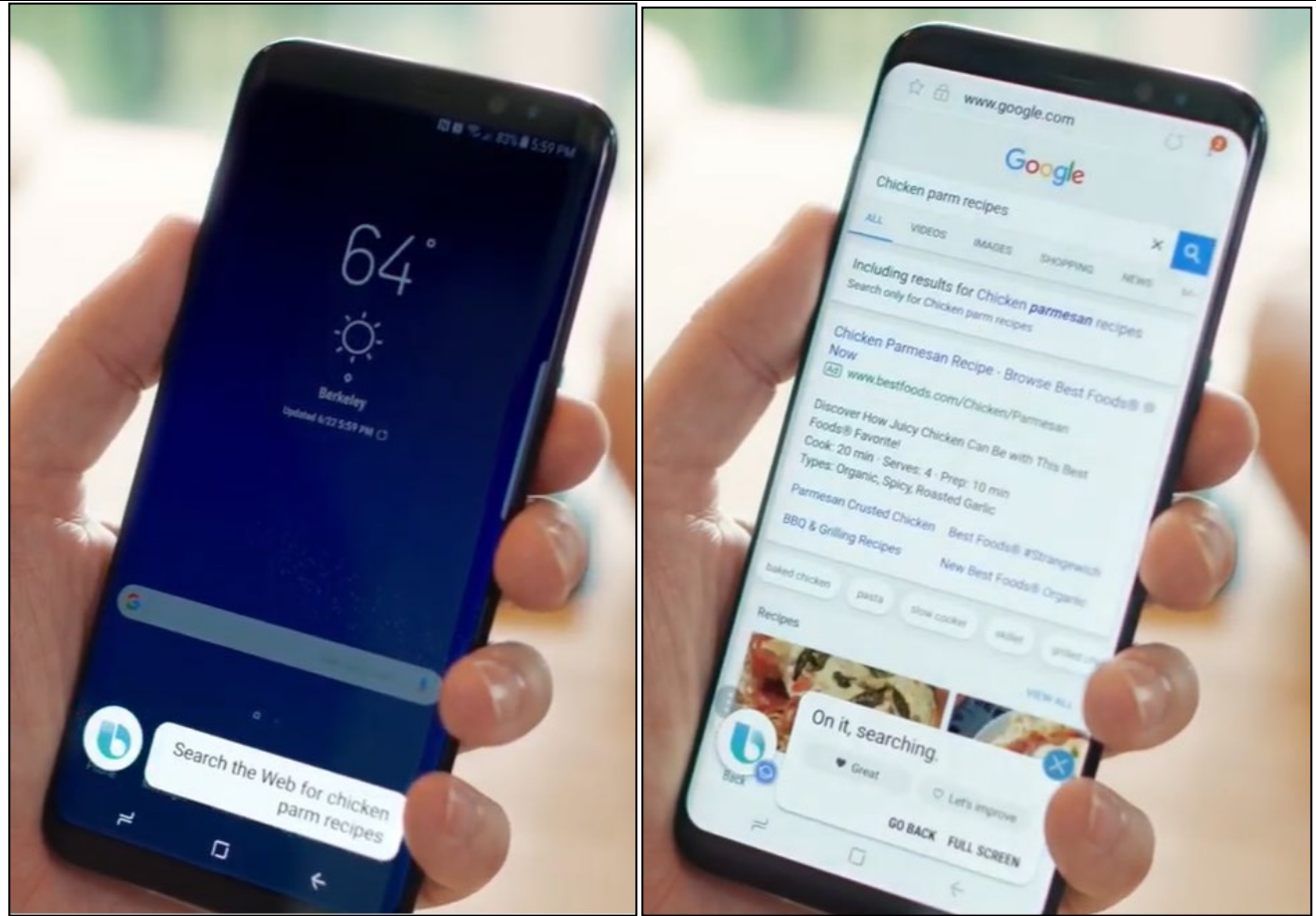
Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

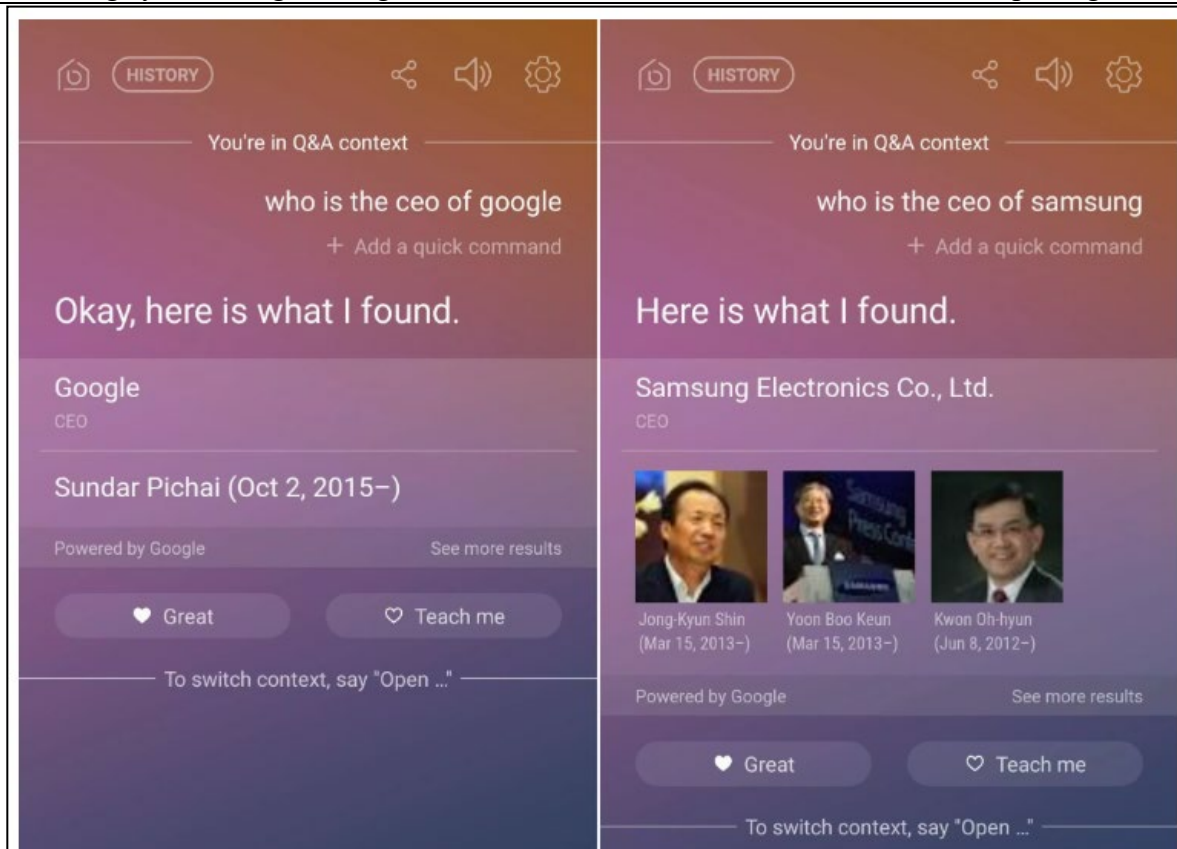
See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



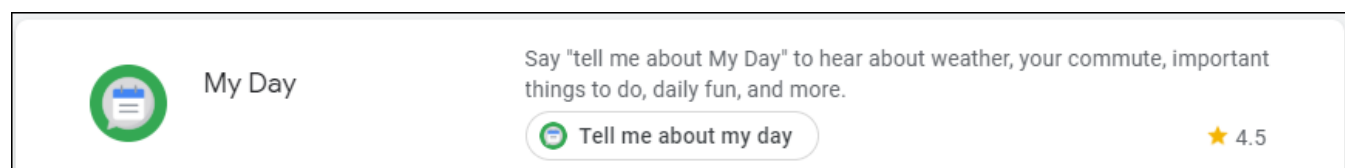
See, e.g., <https://www.youtube.com/watch?v=xISIM1-77TQ>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., <https://www.cnet.com/how-to/most-useful-bixby-voice-commands/>

The information retrieved by the Samsung Accused Products is provided to users in an audio form via said voice-enabled device. For example, Google indicates that one can “**hear** about weather, your commute, important things to do, daily fun, and more.”



See, e.g., https://assistant.google.com/explore?hl=en_us.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

How Conversational Actions work ↻

Unlike with traditional mobile and desktop apps, which use computer-centric paradigms, users interact with Actions for the Assistant through natural-sounding, back and forth conversation. Conversational Actions begin when invoked by a user and continue until the user chooses to exit (using predetermined phrases) or your Conversational Action denotes the end of the conversation.

During a conversation, user inputs are transformed from speech to text by the Assistant, and formed into JSON requests for natural language processing. These requests are sent to what's known as your **conversation fulfillment**.

Your conversation fulfillment parses the user's query into structured data, processes that data, and returns a webhook JSON response to the Assistant. The Assistant then processes and presents your response to the user.

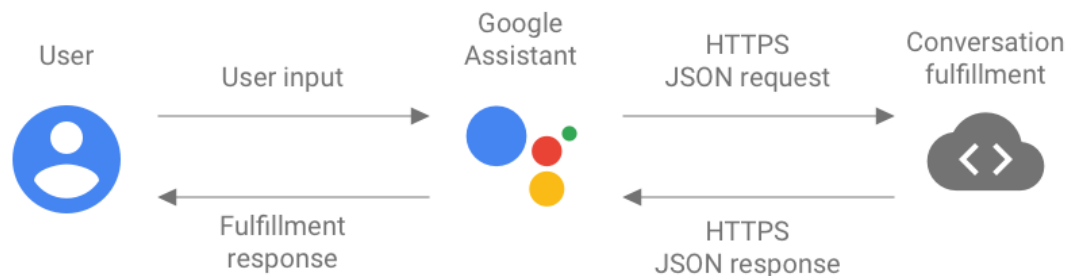


Figure 2. Conversation fulfillment is a JSON in-JSON out system

Building your own natural language processing service can be challenging, so we provide Dialogflow as a way to handle it for you. For developers who cannot use Dialogflow, we also provide the Actions SDK as a backup option with a separate, but related, development path.

See, e.g., <https://developers.google.com/assistant/conversational/overview>.

Built on Google infrastructure

Dialogflow is a Google service that runs on Google Cloud Platform, letting you scale to hundreds of millions of users.

Optimized for the Google Assistant

Dialogflow is the most widely used tool to build Actions for more than 400M+ Google Assistant devices.

See, e.g., <https://dialogflow.com/>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

Dialogflow is a natural language understanding platform that makes it easy to design and integrate a conversational user interface into your mobile app, web application, device, bot, interactive voice response system, and so on. Using Dialogflow, you can provide new and engaging ways for users to interact with your product.

Dialogflow can analyze multiple types of input from your customers, including text or audio inputs (like from a phone or voice recording). It can also respond to your customers in a couple of ways, either through text or with synthetic speech.

See, e.g., <https://cloud.google.com/dialogflow/docs/>



Powered by Google machine learning

Natural language understanding recognizes a user's intent and extracts prebuilt entities such as time, date, and numbers. You can train your agent to identify custom entity types by providing a small dataset of examples. You can also use [40+ prebuilt agents](#) as templates.

See, e.g., <https://cloud.google.com/dialogflow/>.

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



Designed for a voice-first world

You can expand your conversational interface to recognize voice interactions and generate a voice response, all with a single API call. Powered by [Google Cloud Speech-to-Text](#) and [Cloud Text-to-Speech](#), it supports real-time streaming and synchronous modes.

See, e.g., <https://cloud.google.com/dialogflow/>.

On information and belief, the information retrieved by the Samsung Accused Products in conjunction with Bixby is also provided to users in an audio form via said voice-enabled device.

Dialog

- Output at top of screen, always spoken. Only output on a device without a screen
- Consists of:
 - event: dialog event type
 - match-pattern: match to concept(s)/action(s)
 - template: output



```
dialog (%event%) {
  match: %match-pattern%
  template (%text%)
}
```

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"

See, e.g.,

https://www.youtube.com/watch?v=MSITk_PaMQs&feature=youtu.be&list=PLE9wDcpAxXg85ldqnxB5MdRqKECKKYu-U

What is a Dialog?

As users interact with Bixby, it communicates back to them in various ways. This could be as simple as the result of a user utterance, or it could be a request for additional information. These messages, or dialog, tell users what is happening, what has happened, and what can happen next.

A typical interaction might start with a user asking "What's the weather like in Palo Alto, California this Friday?" After Bixby processes this request, the user sees this sequence of messages:

Checking the weather...

Here's the weather on Friday for Palo Alto, CA

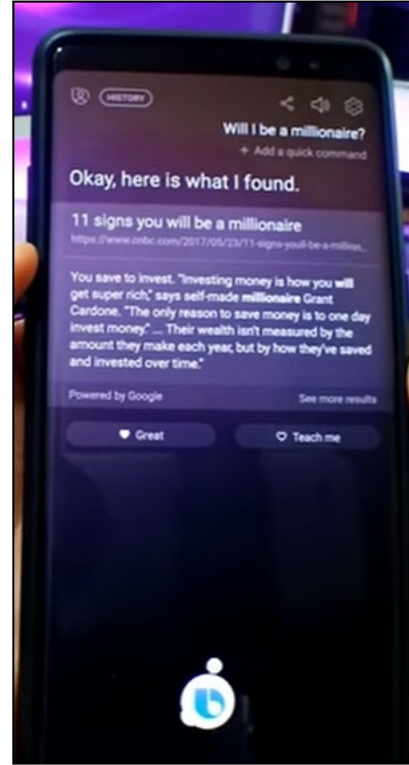
Bixby dynamically generates messages to communicate with the user. These messages complement layouts by giving status information, paraphrasing results, asking questions, and much more. Bixby provides some default messages for results, but you might want to add your own custom messages to truly match the tone and approach of your capsule. You can improve these messages by writing custom dialog files.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/refining-dialog.intro-dialog>

Bixby Voice responds to your queries as a **virtual** assistant that lives in your pocket. Some folks might not want to listen to the Bixby voice "Stephanie" or you might be hoping to switch those responses to another language. This is a pretty simple process from within the settings of the Bixby app, and it should only take you a few moments to do.

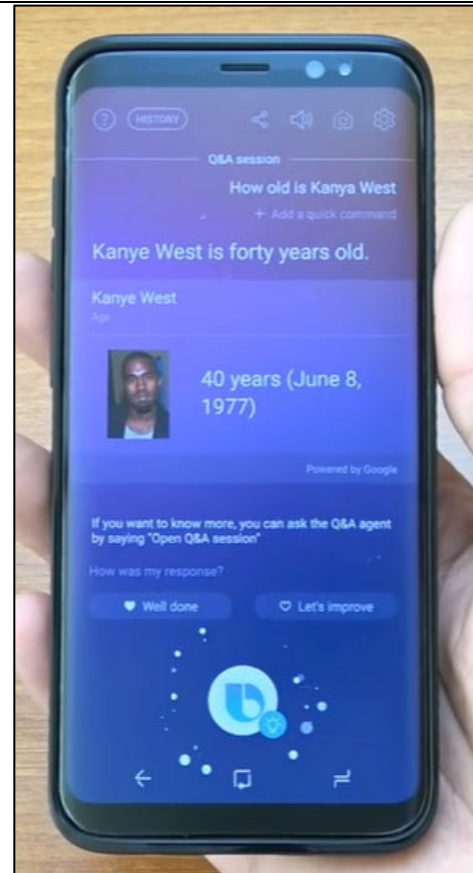
See, e.g., <https://www.androidcentral.com/how-change-language-and-speaking-style-bixby-voice>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., <https://youtu.be/MGSMq52xjNk?t=110>

"1[preamble]. An Internet voice browsing system for gathering information from web sites on the Internet, comprising:"



See, e.g., https://youtu.be/EjYkDfTwb_A?t=147

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet the preamble. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in the preamble or remainder of the claim that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet the preamble under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the preamble is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the preamble.

1[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;”

<p>1[a]. a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;</p>	<p>Samsung is infringing, and has infringed, element 1[a] by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet having a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message.</p> <p>The Samsung Accused Products include a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message.</p> <p>For example, the Samsung Accused Products include a CPU-based media server that includes a speech recognition engine and a speech synthesis engine. Google’s speech recognition can be performed on the device or with help from the cloud. On information and belief, the CPU-based media server is in the Google Cloud.</p>
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An All-Neural On-Device Speech Recognizer

Tuesday, March 12, 2019

Posted by Johan Schalkwyk, Google Fellow, Speech Team

In 2012, speech recognition research showed significant accuracy improvements with deep learning, leading to early adoption in products such as Google's Voice Search. It was the beginning of a revolution in the field: each year, new architectures were developed that further increased quality, from deep neural networks (DNNs) to recurrent neural networks (RNNs), long short-term memory networks (LSTMs), convolutional networks (CNNs), and more. During this time, latency remained a prime focus — an automated assistant feels a lot more helpful when it responds quickly to requests.

Today, we're happy to announce the rollout of an end-to-end, all-neural, on-device speech recognizer to power speech input in Gboard. In our recent paper, "Streaming End-to-End Speech Recognition for Mobile Devices", we present a model trained using RNN transducer (RNN-T) technology that is compact enough to reside on a phone. This means no more network latency or spottiness — the new recognizer is always available, even when you are offline. The model works at the character level, so that as you speak, it outputs words character-by-character, just as if someone was typing out what you say in real-time, and exactly as you'd expect from a keyboard dictation system.

See, e.g., <https://ai.googleblog.com/2019/03/an-all-neural-on-device-speech.html>.

1[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;"

How Conversational Actions work ⇄

Unlike with traditional mobile and desktop apps, which use computer-centric paradigms, users interact with Actions for the Assistant through natural-sounding, back and forth conversation. Conversational Actions begin when invoked by a user and continue until the user chooses to exit (using predetermined phrases) or your Conversational Action denotes the end of the conversation.

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Your conversation fulfillment parses the user's query into structured data, processes that data, and returns a webhook JSON response to the Assistant. The Assistant then processes and presents your response to the user.

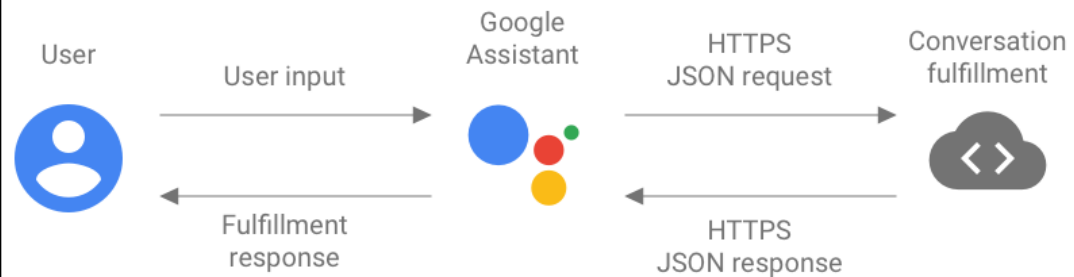
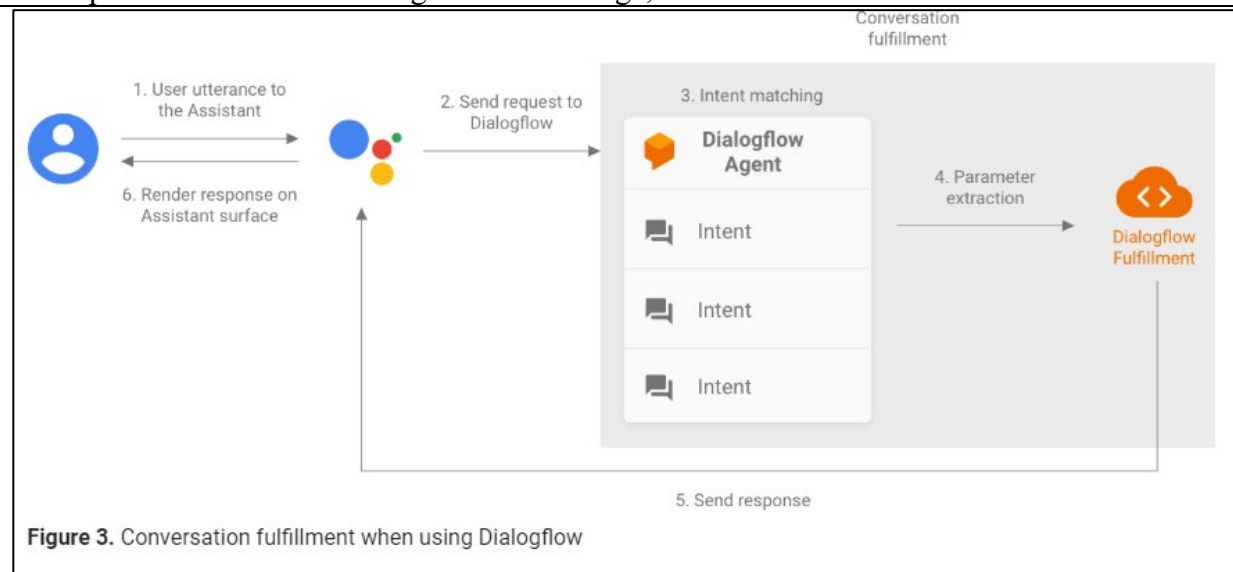


Figure 2. Conversation fulfillment is a JSON in-JSON out system

Building your own natural language processing service can be challenging, so we provide Dialogflow as a way to handle it for you. For developers who cannot use Dialogflow, we also provide the Actions SDK as a backup option with a separate, but related, development path.

See, e.g., <https://developers.google.com/assistant/conversational/overview>.

1[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;”



See, e.g., <https://developers.google.com/assistant/conversational/overview>.

Built on Google infrastructure

Dialogflow is a Google service that runs on Google Cloud Platform, letting you scale to hundreds of millions of users.

Optimized for the Google Assistant

Dialogflow is the most widely used tool to build Actions for more than 400M+ Google Assistant devices.

See, e.g., <https://dialogflow.com/>

Dialogflow is a natural language understanding platform that makes it easy to design and integrate a conversational user interface into your mobile app, web application, device, bot, interactive voice response system, and so on. Using Dialogflow, you can provide new and engaging ways for users to interact with your product.

Dialogflow can analyze multiple types of input from your customers, including text or audio inputs (like from a phone or voice recording). It can also respond to your customers in a couple of ways, either through text or with synthetic speech.

See, e.g., <https://cloud.google.com/dialogflow/docs/>

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Powered by Google machine learning

Natural language understanding recognizes a user's intent and extracts prebuilt entities such as time, date, and numbers. You can train your agent to identify custom entity types by providing a small dataset of examples. You can also use [40+ prebuilt agents](#) as templates.

See, e.g., <https://cloud.google.com/dialogflow/>.



Designed for a voice-first world

You can expand your conversational interface to recognize voice interactions and generate a voice response, all with a single API call. Powered by [Google Cloud Speech-to-Text](#) and [Cloud Text-to-Speech](#), it supports real-time streaming and synchronous modes.

1[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;”

See, e.g., <https://cloud.google.com/dialogflow/>.

The most significant Assistant news. But by far the most significant Assistant news was the movement of speech processing onto the handset from the network. Google said it had reduced the computing power required to do speech processing from 100GB to “less than half a gigabyte.” The practical effect of that is that most of the speech processing can now take place on the smartphone – making the Assistant and its associated functions (opening apps, dictating messages) much much faster. It can also happen without a network connection.

See, e.g., <https://searchengineland.com/google-assistant-moves-from-the-cloud-to-the-phone-now-10x-faster-316556>.

Starting today, third-party developers will have access to the same speech recognition technology that powers Google’s products. Available in Google Cloud, the **Cloud Search API** has also been updated with new features and improved performance.

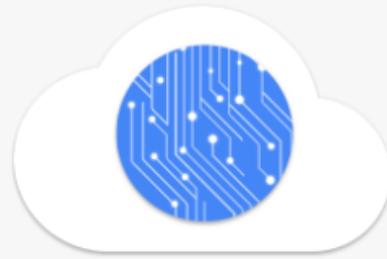
See, e.g., <https://9to5google.com/2017/04/18/google-cloud-speech-api-recognition/>.

Powerful speech recognition

Google Cloud Speech-to-Text enables developers to convert audio to text by applying powerful neural network models in an easy-to-use API. The API recognizes 120 languages and variants to support your global user base. You can enable voice command-and-control, transcribe audio from call centers, and more. It can process real-time streaming or prerecorded audio, using Google’s machine learning technology.

See, e.g., <https://cloud.google.com/speech-to-text/>.

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Powered by machine learning

Apply the most advanced deep-learning neural network algorithms to audio for speech recognition with unparalleled accuracy. Accuracy improves over time as Google improves the internal speech recognition technology used by Google products.

See, e.g., id.

Features

Automatic speech recognition

Automatic speech recognition (ASR) powered by deep learning neural networking to power your applications like voice search or speech transcription.

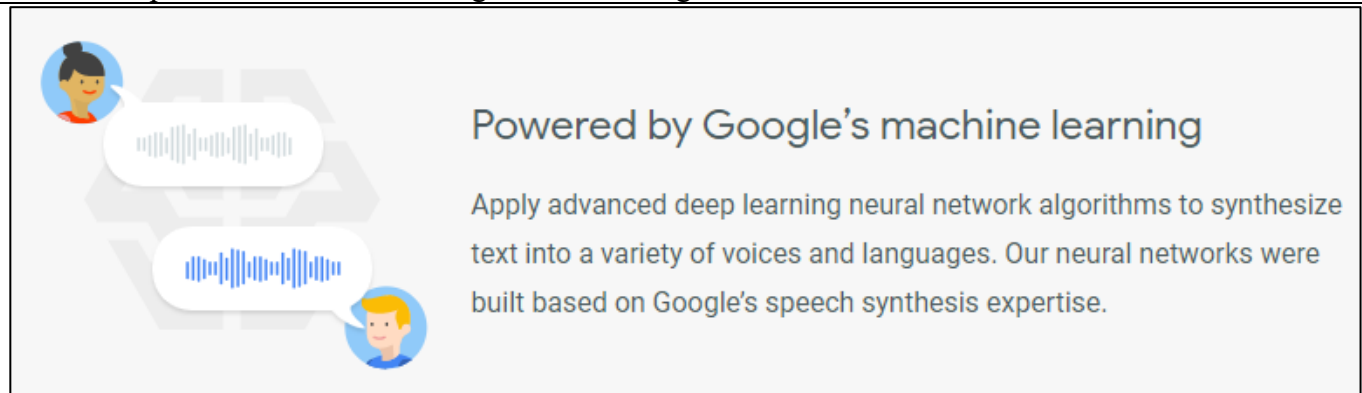
See, e.g., id.

High-fidelity speech synthesis

Google Cloud Text-to-Speech converts text into human-like speech in more than 180 voices across 30+ languages and variants. It applies groundbreaking research in speech synthesis (WaveNet) and Google's powerful neural networks to deliver high-fidelity audio. With this easy-to-use API, you can create lifelike interactions with your users that transform customer service, device interaction, and other applications.

See, e.g., <https://cloud.google.com/text-to-speech/>.

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See, e.g., id.

Text-to-Speech allows developers to create natural-sounding, synthetic human speech as playable audio. You can use the audio data files you create using Text-to-Speech to power your applications or augment media like videos or audio recordings (in compliance with the [Google Cloud Platform Terms of Service](#) including compliance with all applicable law).

Text-to-Speech converts text or Speech Synthesis Markup Language (SSML) input into audio data like MP3 or LINEAR16 (the encoding used in WAV files).

See, e.g., <https://cloud.google.com/text-to-speech/docs/basics>.

Speech synthesis

The process of translating text input into audio data is called *synthesis* and the output of synthesis is called *synthetic speech*. Text-to-Speech takes two types of input: raw text or SSML-formatted data (discussed below). To create a new audio file, you call the [synthesize](#) endpoint of the API.

The speech synthesis process generates raw audio data as a base64-encoded string. You must decode the base64-encoded string into an audio file before an application can play it. Most platforms and operating systems have tools for decoding base64 text into playable media files.

See, e.g., id.

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Creating voice audio files

[SEND FEEDBACK](#)

Text-to-Speech allows you to convert words and sentences into base64 encoded audio data of natural human speech. You can then convert the audio data into a playable audio file like an MP3 by decoding the base64 data. The Cloud Text-to-Speech API accepts input as raw text or [Speech Synthesis Markup Language \(SSML\)](#).

See, e.g., <https://cloud.google.com/text-to-speech/docs/create-audio>.

Overview

Actions on Google lets you extend the functionality of the Google Assistant with **Actions**. Actions let users get things done through a conversational interface that can range from a quick command to turn on some lights or a longer conversation, such as playing a trivia game.

Dialogflow is a conversational platform that lets you design and build Actions by wrapping the functionality of the [Actions SDK](#) and providing additional features such as an easy-to-use IDE, natural language understanding (NLU), machine learning, and more.

To extend the Google Assistant, you build an Action with the following steps.

See, e.g., <https://developers.google.com/assistant/actions/dialogflow>.

1[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;"

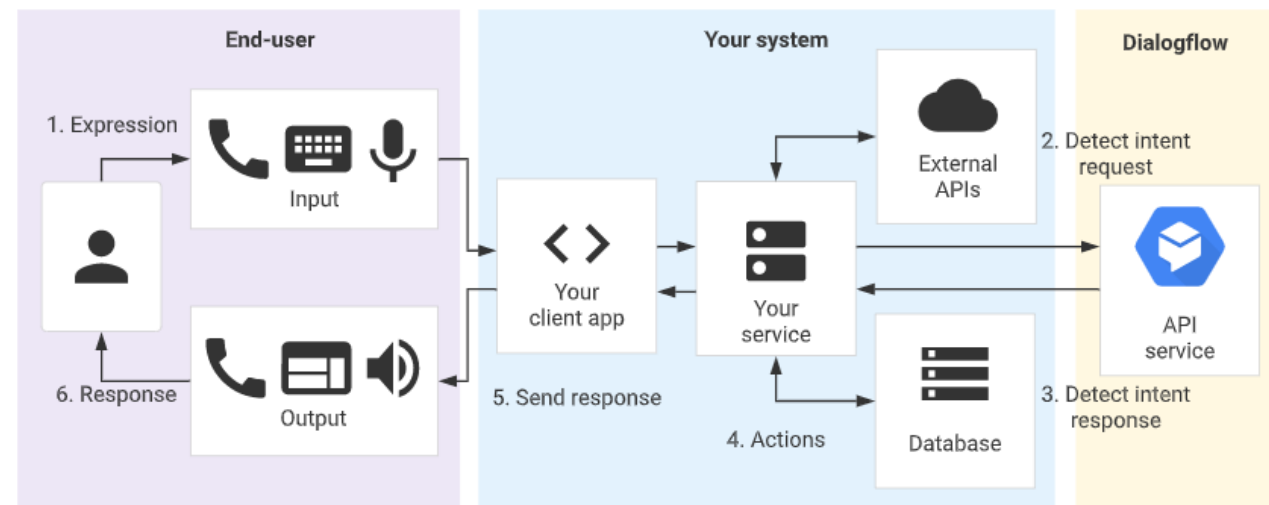
	<div><h3>Help users interact with technology</h3><p>Traditional computer interfaces require structured and predictable input to function properly, which makes the use of these interfaces unnatural and sometimes difficult. If end-users can't easily understand this structured input, they have a hard time figuring out what to do. Ideally, your interfaces can infer what your end-users want, based on the natural language they are using.</p><p>For example, consider a simple user request like "What's the weather forecast today?". Other end-users might also ask:</p><ul style="list-style-type: none">• "What's the weather like right now?"• "What's the temperature going to be in San Francisco tomorrow?"• "What will the weather be on the 21st?"<p>Even with these simple questions, you can see that conversational experiences are hard to implement. Interpreting and processing natural language requires a very robust language parser. Dialogflow handles this for you, so you can provide a high quality conversational end-user experience.</p></div> <p><i>See, e.g., id.</i></p>
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1[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;”

API interactions

[SEND FEEDBACK](#)

If you are not using one of the [integration](#) options, you must write code that directly interacts with the end-user. You must also directly interact with Dialogflow's API for each conversational turn to send end-user expressions and receive intent matches. The following diagram shows the processing flow when interacting with the API.

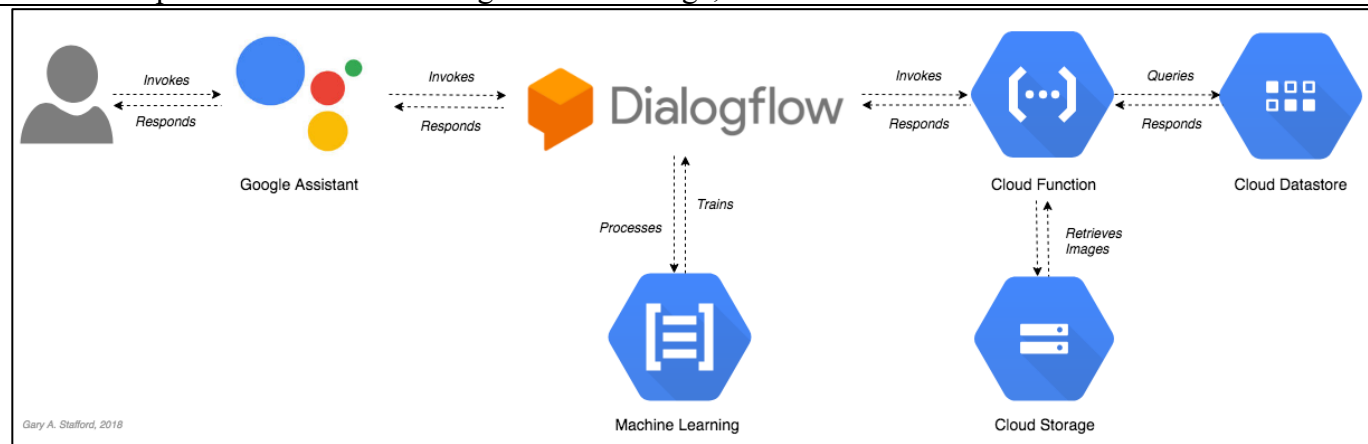


See, e.g., <https://cloud.google.com/dialogflow/docs/api-overview>.

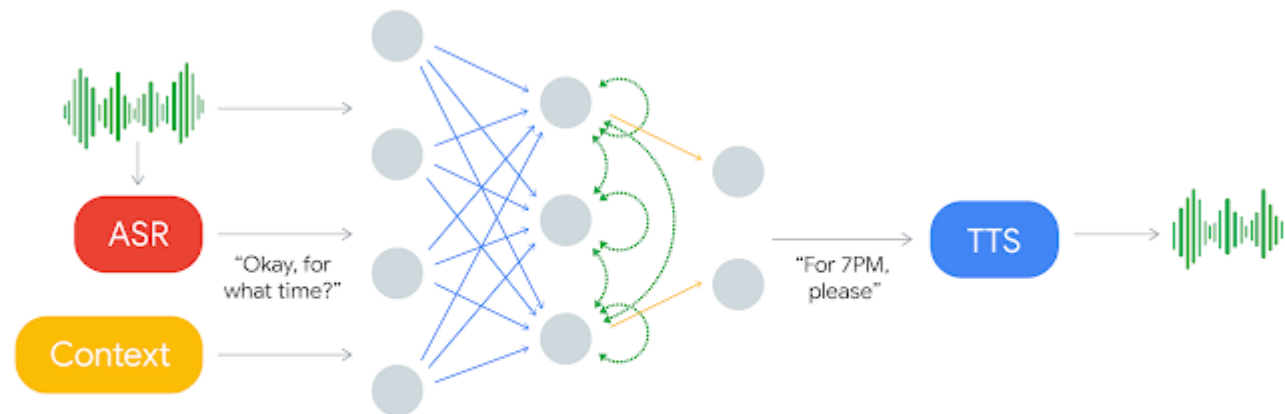
1. The end-user types or speaks an expression.
2. Your service sends this end-user expression to Dialogflow in a detect intent request message.
3. Dialogflow sends a detect intent response message to your service. This message contains information about the matched intent, the action, the parameters, and the response defined for the intent.
4. Your service performs actions as needed, like database queries or external API calls.
5. Your service sends a response to the end-user.
6. The end-user sees or hears the response.

See, e.g., *id.*

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See, e.g., <https://programmaticponderings.com/2018/08/11/building-serverless-actions-for-google-assistant-with-google-cloud-functions-cloud-datastore-cloud-storage/>.

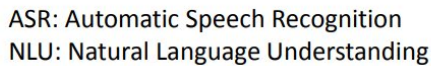


Incoming sound is processed through an ASR system. This produces text that is analyzed with context data and other inputs to produce a response text that is read aloud through the TTS system.

See, e.g., <https://ai.googleblog.com/2018/05/duplex-ai-system-for-natural-conversation.html>.

On information and belief, the Samsung Accused Products in conjunction with Bixby also include at least one speech synthesis device.

speech command into a digital data message;"

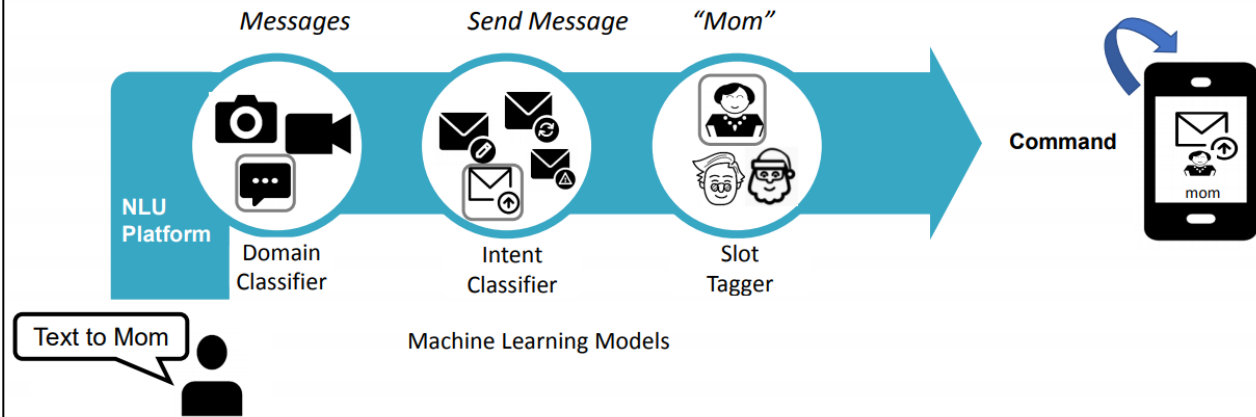


See, e.g., Samsung Voice Intelligence v5.5 Presentation at 9 (July 25, 2018), available at https://www.slideshare.net/vinutharani1995/samsung-voice-intelligencev55-107403316?from_action=save

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Traditional NLU Flow

SAMSUNG

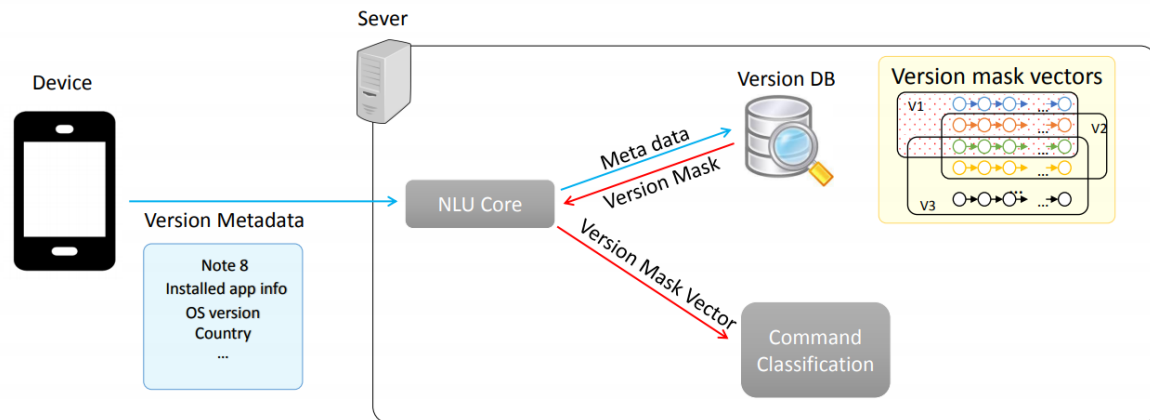


See, e.g., *id.* at 10.

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



1[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;"

See, e.g., id. at 21.

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

What to Know About Bixby

Doesn't have a gender. Bixby has neither gender nor sex and does not identify with any sexual orientation.

Does not possess a body. Bixby doesn't have a physical presence and is not human.

Lives in the cloud. Bixby does not have a physical location.

But knows what's going on in the world. Bixby can make pop culture and news references.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/design-guides/writing>

Research Phase

While you're creating your own capsule, narrow down what you want the user to be able to accomplish through Bixby while using their device and the cloud platform. Essentially, you're asking "What ability do I want to teach Bixby?"

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/managing-caps.planning-external>

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For example, `spaceResorts`, local JavaScript files include all the necessary **action implementations** for each of the actions modeled, even sorting the various `*.js` files the same way as the action models. **JavaScript in this capsule is executed in the cloud through Bixby servers**, though JavaScript can also be executed on your server if your capsule uses remote **endpoints**. Additionally, the objects being returned from the calls are also in local JSON files, under the `code/lib` directory.

See, e.g., <https://bixbydevelopers.com/dev/docs/sample-capsules/walkthroughs/space-resorts>

Implementing JavaScript Actions

Functions are the implementations of actions. They actually execute the steps of a plan, by making computations or contacting external APIs. You first define inputs and outputs within an **action** first. You then implement functions using JavaScript to provide the necessary logic, operations, and to specify the same inputs and outputs as the action. **Local JavaScript is executed in the cloud on Bixby servers**, while remote JavaScript is executed on your own server.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/actions.js-actions>

Q. Will using Bixby eat up my mobile data, and is it possible to use it overseas?

Bixby only utilizes your mobile data when listening to a command, not before or after. As a result, the length of the command ultimately determines the amount of mobile data used.

See, e.g., <https://news.samsung.com/global/bixby-101-get-to-know-the-ins-and-outs-of-samsungs-intelligent-interface>

Do I need Wi-Fi or mobile data to use Bixby?

Yes, to use Bixby, you must be connected to a mobile data or Wi-Fi network.

See, e.g., <https://www.samsung.com/ca/support/mobile-devices/questions-about-bixby/>

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Introduction to Training for Natural Language

Bixby uses natural language (NL) from the user as input. You can improve Bixby's ability to understand NL input by training Bixby to understand real-world examples of natural language in Bixby Developer Studio (Bixby Studio). For example, in the [Quick Start Guide](#), you train the dice game to recognize "roll 2 6-sided dice". This phrase is an **utterance**. NL training is based on utterances that humans might type or say when interacting within Bixby. Utterances don't have to be grammatical and can include slang or colloquial language.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/training.intro-training>

Using SSML

Bixby's dialog can include a subset of tags from [Speech Synthesis Markup Language \(SSML\)](#), a W3C standard for enriching text-to-speech.

To use SSML, you must observe the following rules:

- SSML is **only** valid inside the `speech` key in [dialog templates](#).
- Speech **must** start with the `<speech>` tag and end with the `</speech>` closing tag. If these tags are not present, the speech will not be recognized as containing SSML.
- The speech string **must** be enclosed in quote marks, and quotes inside the string **must** be escaped with a `\` character.

See, e.g., <https://bixbydevelopers.com/dev/docs/reference/ref-topics/ssml>

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Bixby Voice is easily activated. Users simply need to press and hold the dedicated hardware button on the side of the Galaxy S8, say “Bixby” or tap it on the Bixby Home screen to wake it up.

While most traditional smartphone-related tasks require touch activation, Bixby’s multi-modality lets users control their phone using voice and touch controls interchangeably for maximized convenience. Utilizing natural language understanding, Bixby has the ability to adapt to the unique speaking style of the user. But if Bixby doesn’t understand the user’s command, it will ask for more information so it can complete the task, rather than giving up.

See, e.g., <https://news.samsung.com/global/a-new-way-to-interact-with-your-phone-bixby-the-galaxy-s8-intelligent-interface>

Speak naturally.

Bixby understands natural, conversational language along with context, like the email you’re reading or the photo you just took. Simply talk the way you would to a friend to get what you need.

See, e.g., <https://www.samsung.com/us/explore/bixby/>

Make things happen.

Just say what you want, and Bixby will deliver. Sure you can ask for dinner reservation, but you can also call a ride all with your voice.

See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/>

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“What’s the status of flights from SFO to LAX?”

See, e.g., id.



“What’s the time difference between Paris and Seoul?”

See, e.g., id.

U.S. Patent No. 6,721,705: Claim 1

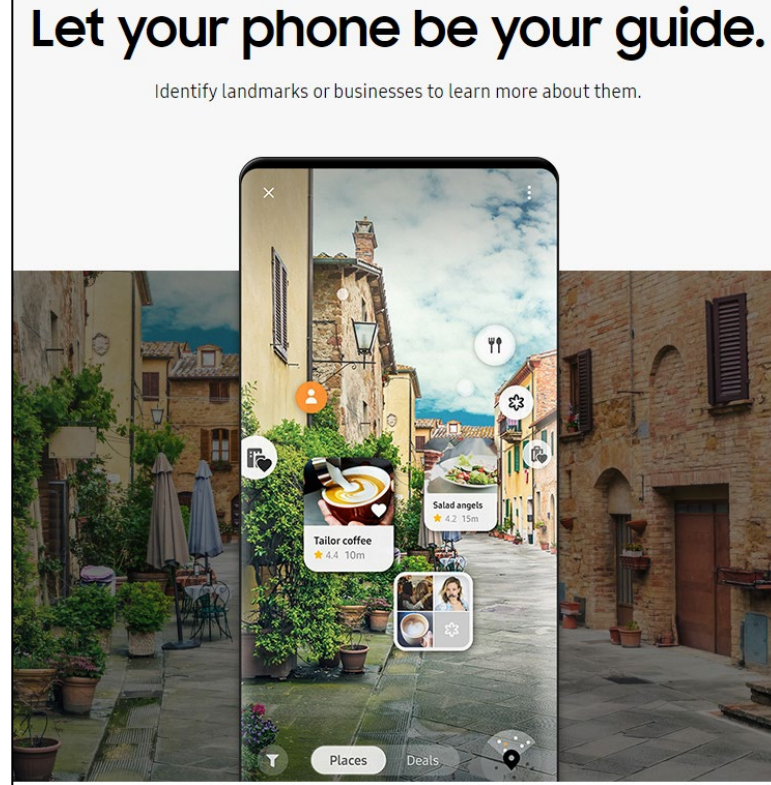
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“Give me the directions to 645 Clyde Ave.”

See, e.g., id.

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See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/vision/>

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You can search the internet

Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>


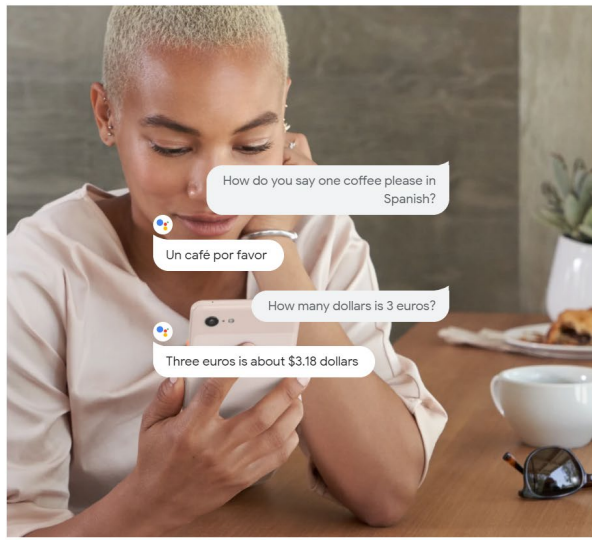
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See, e.g., <https://www.youtube.com/watch?v=xISIMl-77TQ>

The media server also includes an interactive voice response application. For example, the Samsung Accused Products include an interactive voice response application because a user can send it speech commands and the Samsung Accused Products respond in an interactive manner with speech responses.

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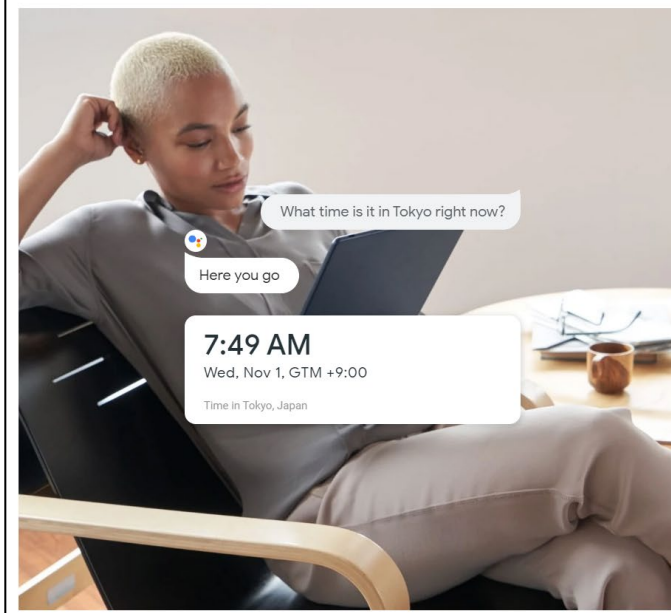
	<div data-bbox="787 191 1806 812"> <p>Talk or type to your Google Assistant on the go</p>  <p>Remember I parked on floor 1, spot 345 of the parking garage</p> <p>Ok, I'll remember that</p> <p>Where did I park?</p> <p>You parked on floor 1, spot 345 of the parking garage</p> <p>Manage tasks</p> <p>Send a text, set reminders, turn on battery saver and instantly look up emails.</p> </div> <p>See, e.g., https://assistant.google.com/platforms/phones/.</p> <div data-bbox="751 885 1848 1461">  <p>How do you say one coffee please in Spanish?</p> <p>Un café por favor</p> <p>How many dollars is 3 euros?</p> <p>Three euros is about \$3.18 dollars</p> <p>Get answers</p> <p>Get real-time answers including the latest on weather, traffic, finance, or sports. Quickly find translations while you're traveling.</p> </div> <p>See, e.g., <i>id.</i></p>
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U.S. Patent No. 6,721,705: Claim 1

1[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user and to convert said speech command into a digital data message;”

	<div data-bbox="1119 196 1675 293" data-label="Text"> <p>Say "Hey Google" or press the Assistant Key</p> </div> <div data-bbox="686 326 1356 938" data-label="Image"> </div> <div data-bbox="1482 583 1690 621" data-label="Section-Header"> <h3>Manage tasks</h3> </div> <div data-bbox="1482 634 1925 682" data-label="Text"> <p>Send an email, set reminders, manage your calendar, all without switching screens.</p> </div> <div data-bbox="560 946 1299 985" data-label="Text"> <p>See, e.g., https://assistant.google.com/platforms/laptops/.</p> </div>
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Get answers

Ask questions and get answers to things you want to know. Just type, talk or circle.

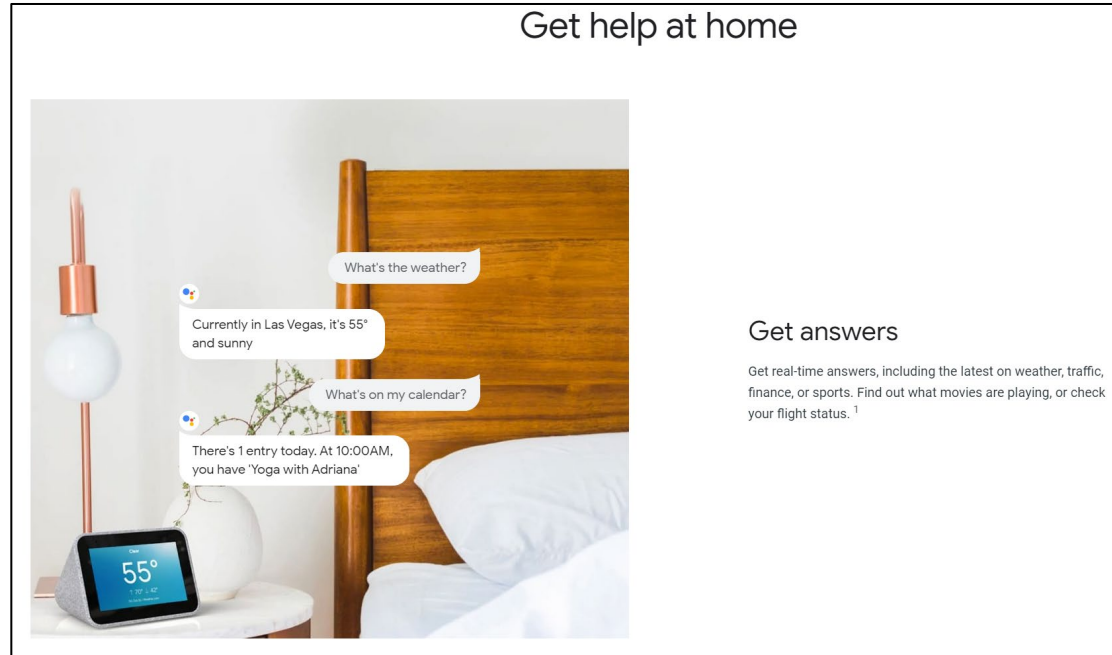
See, e.g., id.

The Google Assistant now in even more devices

With your Google Assistant in even more devices, it's easy to get things done. Just start with "Hey Google" to quickly get answers, manage daily tasks, and, of course, control your device or the rest of your smart home. Your Assistant can help free up your hands and time, so you can focus on the things that matter most.¹

See, e.g., <https://assistant.google.com/platforms/devices/>.

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See, e.g., id.

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Local Information

"What's the weather right now?"

"How's the traffic to work?"

"Give me directions to the airport"

"Find the closest ATM"

"What time does the post office close?"


"Call the nearest pharmacy"

"Will it rain tomorrow?"

"Find movies playing nearby"

See, e.g., <https://assistant.google.com/learn/>.

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	<p></p> <h2>Quick answers</h2> <p>"How many ounces are in a pound?"</p> <p>"What's 20% of 47?"</p> <p>"How do you say hello in Chinese?"</p> <p>"How much protein is in an egg?"</p> <p>"What time is it in London?"</p> <p>"What's on my schedule today?"</p> <p>"When is sunset?"</p> <p>"What is the S&P 500 trading at?"</p>	
	<p><i>See, e.g., id.</i></p>	

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Music and News

"Play workout music"

"Play Today's Top Hits on Spotify"

"Tell me the latest news"

"Play NPR news summary"

"Listen to ESPN SportsCenter"

"Play rain sounds"

"Listen to Hidden Brain"

"Set volume to 3"

See, e.g., id.

The media server includes a call processing system and telephony hardware. For example, the Samsung Accused Products can make calls for you and screen phone calls.

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For users, Google Duplex is making supported tasks easier. Instead of making a phone call, the user simply interacts with the Google Assistant, and the call happens completely in the background without any user involvement.



A user asks the Google Assistant for an appointment, which the Assistant then schedules by having Duplex call the business.

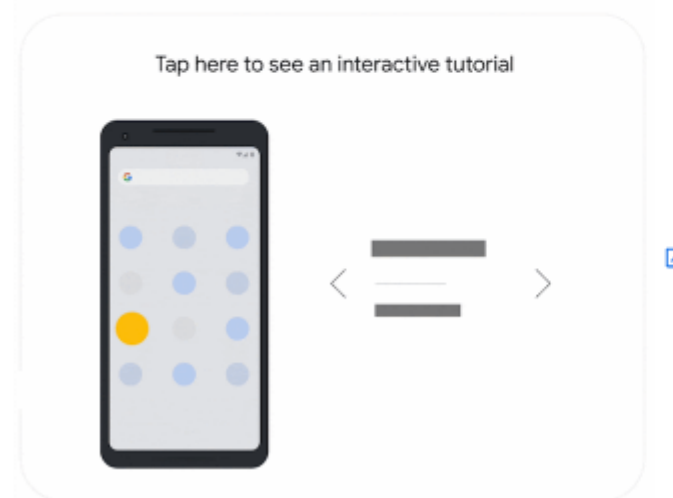
See, e.g., <https://ai.googleblog.com/2018/05/duplex-ai-system-for-natural-conversation.html>.

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Screen your calls before you answer them

You can find out who's calling and why before you pick up a call using Call Screen. Call Screen works on your device and doesn't use Wi-Fi or mobile data. Calls answered by the Google Assistant will incur carrier call minutes. [Learn how Call Screen works with your data.](#)

You can screen calls automatically in English, in the US, on all Pixel phones. You can also screen calls manually in Canada, Japan, and the US on all Pixel phones and select other Android phones.



See, e.g., <https://support.google.com/assistant/answer/9118387?hl=en>.

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How Call Screen works

- Call Screen uses contacts stored on your phone to determine whether to screen a call. If you don't want a number to be screened, save the number as a contact.
- Your phone can detect robocalls and spam calls from numbers in Google's spam database. But not all spam calls and robocalls can be detected.
- When Call Screen is turned on, your phone won't save screened call information to your Google Account, your Google Assistant Activity page, or to [Web and App Activity](#) .
- If you use call forwarding, don't use automatic call screening. Screened calls won't be forwarded.
- Call Screen won't always be able to fully understand and transcribe what a caller said.
- [Learn more about how Call Screen works.](#)

See, e.g., <https://support.google.com/assistant/answer/9118387?hl=en>.

The Samsung Accused Products also allow one to make calls.

Make calls on your Google Assistant device

You can ask the Google Assistant to make phone calls to your friends, family, and businesses on your speaker, Smart Display, or Smart Clock. You can't receive incoming phone calls.

On Smart Displays or Google Nest speakers, [learn how to make calls with Duo](#).

Important:


- This feature doesn't work on Bose or Sonos speakers that have the Google Assistant.
- The languages you can use depend on the device. [Learn which languages work on your device.](#)
- On headphones, you can only make phone calls to your Google contacts.

See, e.g.,

<https://support.google.com/assistant/answer/9071678?co=GENIE.Platform=Android&hl=en#zippy=%2Cwhich-google-assistant-devices-work>.

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What you need

- You have the latest version of the [Google Home app](#) .
- You added your Google Account to your device.

Which Google Assistant devices work

Speakers

- All Google Home speakers
- Some Insignia speakers with Google Assistant built-in
- Some Harman speakers with Google Assistant built-in

Smart Displays

- All Smart Displays with Google Assistant built-in

Smart Clocks

- [Lenovo Smart Clock](#)

See, e.g.,

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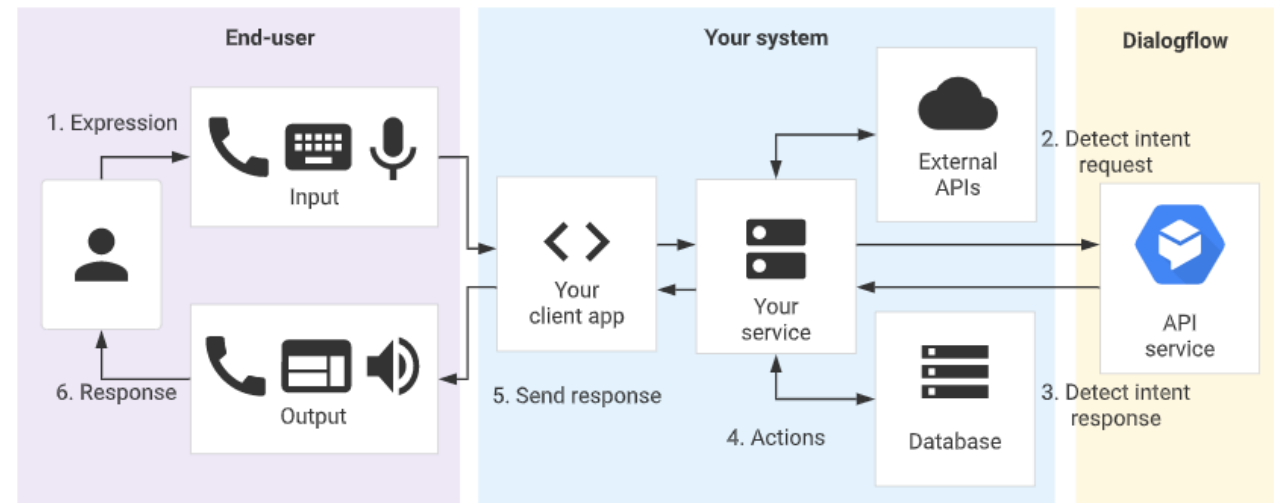
Finally, the media server is configured to receive a speech command from a user and to convert said speech command into a digital message.

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API interactions

[SEND FEEDBACK](#)

If you are not using one of the [integration](#) options, you must write code that directly interacts with the end-user. You must also directly interact with Dialogflow's API for each conversational turn to send end-user expressions and receive intent matches. The following diagram shows the processing flow when interacting with the API.

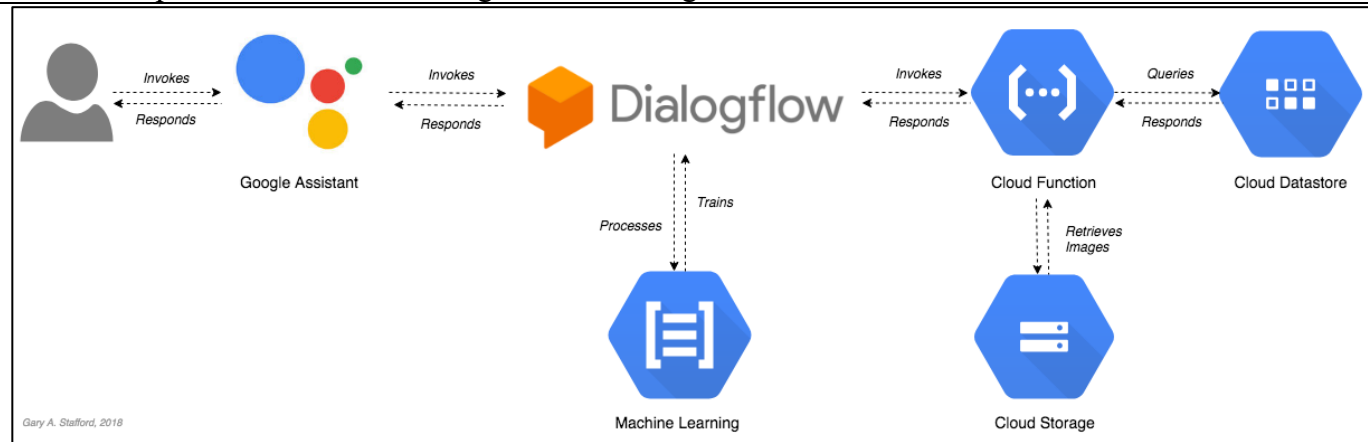


See, e.g., <https://cloud.google.com/dialogflow/docs/api-overview>.

1. The end-user types or speaks an expression.
2. Your service sends this end-user expression to Dialogflow in a detect intent request message.
3. Dialogflow sends a detect intent response message to your service. This message contains information about the matched intent, the action, the parameters, and the response defined for the intent.
4. Your service performs actions as needed, like database queries or external API calls.
5. Your service sends a response to the end-user.
6. The end-user sees or hears the response.

See, e.g., *id.*

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See, e.g., <https://programmaticponderings.com/2018/08/11/building-serverless-actions-for-google-assistant-with-google-cloud-functions-cloud-datastore-cloud-storage/>.

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1[b]. "a database containing a list of web sites stored on magnetic media,"

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Samsung is infringing, and has infringed, element 1[b] by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet having a database containing a list of web sites stored on magnetic media.

The Samsung Accused Products include a database containing a list of web sites stored on magnetic media.

For example, the Samsung Accused Products include a database containing web sites that have already been indexed by the Googlebot and stored on magnetic media.

Googlebot

[Send feedback](#)

Googlebot is the generic name for Google's [web crawler](#). Googlebot is the general name for two different types of crawlers: a desktop crawler that simulates a user on desktop, and a mobile crawler that simulates a user on a mobile device.

Your website will probably be crawled by both Googlebot Desktop and Googlebot Smartphone. You can identify the subtype of Googlebot by looking at the [user agent string](#) in the request. However, both crawler types obey the same product token (user agent token) in robots.txt, and so you cannot selectively target either Googlebot Smartphone or Googlebot Desktop using robots.txt.

See, e.g.,

https://developers.google.com/search/docs/advanced/crawling/googlebot?visit_id=637666205383534437-731356855&rd=1.

Crawling

The first step is finding out what pages exist on the web. There isn't a central registry of all web pages, so Google must constantly search for new pages and add them to its list of known pages. Some pages are known because Google has already visited them before. Other pages are discovered when Google follows a link from a known page to a new page. Still other pages are discovered when a website owner submits a list of pages (a [sitemap](#)) for Google to crawl. If you're using a managed web host, such as Wix or Blogger, they might tell Google to crawl any updated or new pages that you make.

Once Google discovers a page URL, it visits, or *crawls*, the page to find out what's on it. Google renders the page and analyzes both the text and non-text content and overall visual layout to decide where it can appear in Search results. The better that Google can understand your site, the better we can match it to people who are looking for your content.

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See, e.g., <https://developers.google.com/search/docs/beginner/how-search-works>.

Crawling

Crawling is the process by which [Googlebot](#) visits new and updated pages to be added to the Google index.

We use a huge set of computers to fetch (or "crawl") billions of pages on the web. The program that does the fetching is called Googlebot (also known as a robot, bot, or spider). Googlebot uses an algorithmic process to determine which sites to crawl, how often, and how many pages to fetch from each site.

Google's crawl process begins with a list of web page URLs, generated from previous crawl processes, augmented by Sitemap data provided by website owners. When Googlebot visits a page it finds links on the page and adds them to its list of pages to crawl. New sites, changes to existing sites, and dead links are noted and used to update the Google index.

During the crawl, Google renders the page using a recent version of Chrome. As part of the rendering process, it runs any page scripts it finds. If your site uses dynamically-generated content, be sure that you [follow the JavaScript SEO basics](#).

See, e.g., <https://developers.google.com/search/docs/advanced/guidelines/how-search-works>.

Indexing

After a page is discovered, Google tries to understand what the page is about. This process is called *indexing*. Google analyzes the content of the page, catalogs images and video files embedded on the page, and otherwise tries to understand the page. This information is stored in the *Google index*, a huge database stored in many, many (many!) computers.

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Indexing

Googlebot processes each page it crawls in order to understand the content of the page. This includes processing the textual content, key content tags and attributes, such as `<title>` tags and alt attributes, images, videos, and more. Googlebot can process many, but not all, content types. For example, we cannot process the content of some rich media files.

Somewhere between crawling and indexing, Google determines if a page is a [duplicate or canonical](#) of another page. If the page is considered a duplicate, it will be crawled much less frequently. Similar pages are grouped together into a *document*, which is a group of one or more pages that includes the canonical page (the most representative of the group) and any duplicates found (which might simply be alternate URLs to reach the same page, or might be alternate mobile or desktop versions of the same page).

See, e.g., <https://developers.google.com/search/docs/advanced/guidelines/how-search-works>.

Indexing pages to be included in search results

In order for your site's contents to be included in the results of your custom search engine, they need to be included in the Google index. The Google index is similar to an index in a library, which lists information about all the books the library has available. However, instead of books, the Google index lists all of the webpages that Google knows about. When Google visits your site, it detects new and updated pages and updates the Google index.

To see which pages on your site are in the Google index, you can do a Google Web Search for "site:mywebsite.com".

If you want more pages included in the Google index, use the [Google Search Console](#) to submit indexing requests. These requests will change the index for both Google search and your search engine. In order for Programmable Search Engine to recognize the indexing request, the site or URL pattern needs to be listed in the "Sites to search section" found in the [Basics](#) tab of the Setup section in the search engine configuration. Crawling and indexing may not happen immediately.

[Learn how](#) to index individual URLs or URLs linked from a page with Google Search Console. Alternatively, [learn how to create and submit a Sitemap](#) with Google Search Console.

See, e.g., <https://support.google.com/programmable-search/answer/4513925?hl=en>.

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How Bixby works

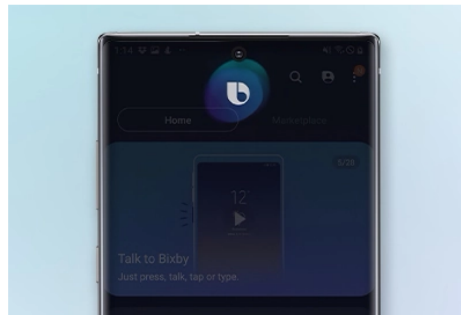
Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

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What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

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Bixby is an [artificial intelligence](#) (AI) system developed by Samsung Electronics to make [device](#) interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and [deep learning](#) to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a [wide](#) variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

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If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and [Google Assistant](#). It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

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First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

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See also, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8942094/>;
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The Samsung Accused Products include a rank number assigned to each one of said web sites and stored in said database.

For example, the Samsung Accused Products rank web sites stored in said database.

Serving (and ranking)

When a user types a query, Google tries to find the most relevant answer from its index based on many factors. Google tries to determine the highest quality answers, and factor in other considerations that will provide the best user experience and most appropriate answer, by considering things such as the user's location, language, and device (desktop or phone). For example, searching for "bicycle repair shops" would show different answers to a user in Paris than it would to a user in Hong Kong. Google doesn't accept payment to rank pages higher, and ranking is done programmatically.

To improve your serving and ranking:

- Make your page fast to load, and mobile-friendly.
- Put useful content on your page and keep it up to date.
- Follow the [Google Webmaster Guidelines](#), which help ensure a good user experience.
- Read more tips and best practices in our [SEO starter guide](#).
- You can find [more information here](#) [↗](#), including [the guidelines that we provide to our quality raters to ensure that we're providing good results](#) [↗](#).

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How Google Assistant ranks results from Google Search

In some cases, the best way Assistant can help with your request is to provide results from Google Search. For example, Assistant may show you Search results on phones or other devices with a screen if it thinks you want to see a wider set of results, or if no other response ranks higher.

You can learn more about how Google's Search ranking algorithms work and the different types of useful responses available from Google Search at [How Search Works](#).

Generally, when Assistant provides results from Google Search, those results are similar to what you would find if you searched for them in Google Search. Assistant applies limited algorithmic adjustments with the aim of providing results that are appropriate and helpful for Assistant users:

- Assistant may filter out inappropriate and explicit content on shared devices, such as smart displays.
- Assistant may consider the context of your request, such as your previous queries, as well as the capabilities of your device, and common use patterns on that type of device. For example, more video results may be shown on TVs than phones.

See, e.g., <https://developers.google.com/assistant/howassistantworks/responses>.

How Search algorithms work

With the amount of information available on the web, finding what you need would be nearly impossible without some help sorting through it. Google ranking systems are designed to do just that: sort through hundreds of billions of webpages in our Search index to find the most relevant, useful results in a fraction of a second, and present them in a way that helps you find what you're looking for.

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These ranking systems are made up of not one, but a whole series of algorithms. To give you the most useful information, Search algorithms look at many factors, including the words of your query, relevance and usability of pages, expertise of sources, and your location and settings. The weight applied to each factor varies depending on the nature of your query—for example, the freshness of the content plays a bigger role in answering queries about current news topics than it does about dictionary definitions.

To help ensure Search algorithms meet high standards of relevance and quality, we have a [rigorous process](#) that involves both live tests and thousands of trained external Search Quality Raters from around the world. These Quality Raters follow strict [guidelines](#) that define our goals for Search algorithms and are publicly available for anyone to see.

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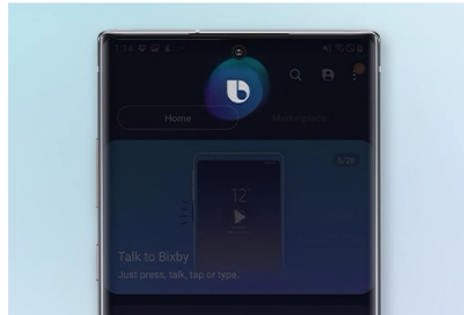
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Samsung is infringing, and has infringed, element 1[d] by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet having a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites.

The Samsung Accused Products include a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites.

For example, on information and belief, the Samsung Accused Products in conjunction with Google Assistant include a CPU-based web browsing server that includes at least a content extraction agent, a content fetcher, a polling and raking agent, and a content descriptor file.

Googlebot

[Send feedback](#)

Googlebot is the generic name for Google's [web crawler](#). Googlebot is the general name for two different types of crawlers: a desktop crawler that simulates a user on desktop, and a mobile crawler that simulates a user on a mobile device.

Your website will probably be crawled by both Googlebot Desktop and Googlebot Smartphone. You can identify the subtype of Googlebot by looking at the [user agent string](#) in the request. However, both crawler types obey the same product token (user agent token) in robots.txt, and so you cannot selectively target either Googlebot Smartphone or Googlebot Desktop using robots.txt.

See, e.g.,

https://developers.google.com/search/docs/advanced/crawling/googlebot?visit_id=637666205383534437-731356855&rd=1.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

Crawling

The first step is finding out what pages exist on the web. There isn't a central registry of all web pages, so Google must constantly search for new pages and add them to its list of known pages. Some pages are known because Google has already visited them before. Other pages are discovered when Google follows a link from a known page to a new page. Still other pages are discovered when a website owner submits a list of pages (a [sitemap](#)) for Google to crawl. If you're using a managed web host, such as Wix or Blogger, they might tell Google to crawl any updated or new pages that you make.

Once Google discovers a page URL, it visits, or *crawls*, the page to find out what's on it. Google renders the page and analyzes both the text and non-text content and overall visual layout to decide where it can appear in Search results. The better that Google can understand your site, the better we can match it to people who are looking for your content.

See, e.g., <https://developers.google.com/search/docs/beginner/how-search-works>.

Crawling

Crawling is the process by which [Googlebot](#) visits new and updated pages to be added to the Google index.

We use a huge set of computers to fetch (or "crawl") billions of pages on the web. The program that does the fetching is called Googlebot (also known as a robot, bot, or spider). Googlebot uses an algorithmic process to determine which sites to crawl, how often, and how many pages to fetch from each site.

Google's crawl process begins with a list of web page URLs, generated from previous crawl processes, augmented by Sitemap data provided by website owners. When Googlebot visits a page it finds links on the page and adds them to its list of pages to crawl. New sites, changes to existing sites, and dead links are noted and used to update the Google index.

During the crawl, Google renders the page using a recent version of Chrome. As part of the rendering process, it runs any page scripts it finds. If your site uses dynamically-generated content, be sure that you [follow the JavaScript SEO basics](#).

See, e.g., <https://developers.google.com/search/docs/advanced/guidelines/how-search-works>.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

Indexing

After a page is discovered, Google tries to understand what the page is about. This process is called *indexing*. Google analyzes the content of the page, catalogs images and video files embedded on the page, and otherwise tries to understand the page. This information is stored in the *Google index*, a huge database stored in many, many (many!) computers.

See, e.g., <https://developers.google.com/search/docs/beginner/how-search-works>.

Indexing

Googlebot processes each page it crawls in order to understand the content of the page. This includes processing the textual content, key content tags and attributes, such as `<title>` tags and alt attributes, images, videos, and more. Googlebot can process many, but not all, content types. For example, we cannot process the content of some rich media files.

Somewhere between crawling and indexing, Google determines if a page is a **duplicate or canonical** of another page. If the page is considered a duplicate, it will be crawled much less frequently. Similar pages are grouped together into a *document*, which is a group of one or more pages that includes the canonical page (the most representative of the group) and any duplicates found (which might simply be alternate URLs to reach the same page, or might be alternate mobile or desktop versions of the same page).

See, e.g., <https://developers.google.com/search/docs/advanced/guidelines/how-search-works>.

1[d]. "a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;"

Indexing pages to be included in search results

In order for your site's contents to be included in the results of your custom search engine, they need to be included in the Google index. The Google index is similar to an index in a library, which lists information about all the books the library has available. However, instead of books, the Google index lists all of the webpages that Google knows about. When Google visits your site, it detects new and updated pages and updates the Google index.

To see which pages on your site are in the Google index, you can do a Google Web Search for "site:mywebsite.com".

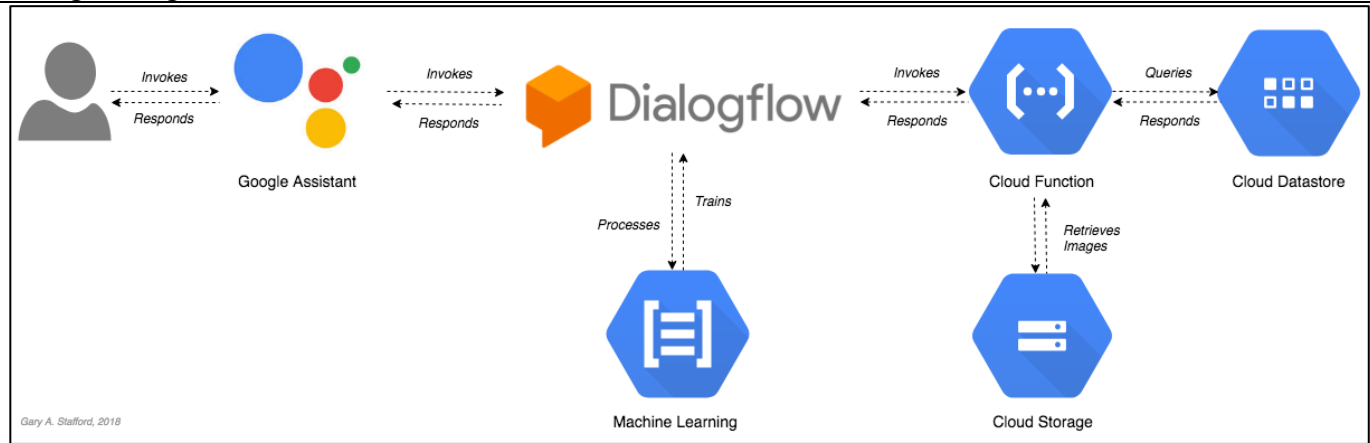
If you want more pages included in the Google index, use the [Google Search Console](#) to submit indexing requests. These requests will change the index for both Google search and your search engine. In order for Programmable Search Engine to recognize the indexing request, the site or URL pattern needs to be listed in the "Sites to search section" found in the [Basics](#) tab of the Setup section in the search engine configuration. Crawling and indexing may not happen immediately.

[Learn how](#) to index individual URLs or URLs linked from a page with Google Search Console. Alternatively, [learn how to create and submit a Sitemap](#) with Google Search Console.

See, e.g., <https://support.google.com/programmable-search/answer/4513925?hl=en>.

The web browsing server of the Samsung Accused Products is configured to receive a digital data message from the media server and configured to access one of the web sites having the highest rank and to retrieve information from at least one of the web sites.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”



See, e.g., <https://programmaticponderings.com/2018/08/11/building-serverless-actions-for-google-assistant-with-google-cloud-functions-cloud-datastore-cloud-storage/>.

How Google Assistant ranks results from Google Search

In some cases, the best way Assistant can help with your request is to provide results from Google Search. For example, Assistant may show you Search results on phones or other devices with a screen if it thinks you want to see a wider set of results, or if no other response ranks higher.

You can learn more about how Google's Search ranking algorithms work and the different types of useful responses available from Google Search at [How Search Works](#).

Generally, when Assistant provides results from Google Search, those results are similar to what you would find if you searched for them in Google Search. Assistant applies limited algorithmic adjustments with the aim of providing results that are appropriate and helpful for Assistant users:

- Assistant may filter out inappropriate and explicit content on shared devices, such as smart displays.
- Assistant may consider the context of your request, such as your previous queries, as well as the capabilities of your device, and common use patterns on that type of device. For example, more video results may be shown on TVs than phones.

See, e.g., <https://developers.google.com/assistant/howassistantworks/responses>.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

How SERPs Change On Google Assistant

Digital assistant search engine results pages are altogether different from what you will see on a browser. Assistants try to streamline and simplify tasks and searches as much as possible. On Google Assistant this generally means only showing the top result.

As digital assistants evolve it is possible that this could expand to two or three options provided. But it is unlikely that 10 results will be used, as it is simply too much information and too many options. You must rethink what a SERP looks like to rank on Google Assistant Searches.

See, e.g., <https://pedestalsearch.com/seo-rank-google-digital-assistant/>.

1[d]. "a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;"

How to Rank on Google Home

Advanced SEO | Search Engines

Google Home, Google's latest digital assistant, is part of a broader market experiment in voice-only search. While the hardware is new, Google has been building toward this future for a while, and one of the clearest examples is the introduction of **featured snippets** to answer questions in search. For example, if I ask Google: "What is a moonshot in business?" I get this answer...

A **moonshot**, in a technology context, is an ambitious, exploratory and ground-breaking project undertaken without any expectation of near-term profitability or benefit and also, perhaps, without a full investigation of potential risks and benefits.

What is moonshot? - Definition from WhatIs.com

whatis.techtarget.com/definition/moonshot

See, e.g., <https://moz.com/blog/how-to-rank-on-google-home>.

1[d]. "a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;"

Google Home is a single-result search device, and featured snippets were designed for exactly this purpose. The good news is that, if we can optimize for featured snippets, we can optimize for voice. Below are six examples that explore how featured snippets become answers on Google Home.

"How many people have walked on the moon?"

Here's a question that should have a factual answer, but, for whatever reason, that answer is not available in Google's Knowledge Graph. So, the answer is extracted from Wikipedia and presented as a featured snippet. It's interesting to note that the answer (twelve) is pulled out of the paragraph and presented on its own...

Twelve

Twelve of these astronauts walked on the Moon's surface, and six of those drove Lunar Roving Vehicles on the Moon. While three astronauts flew to the Moon twice, none of them landed on the Moon more than once. The nine Apollo missions to the Moon occurred between December 1968 and December 1972.

[List of Apollo astronauts - Wikipedia](https://en.wikipedia.org/wiki/List_of_Apollo_astronauts)

https://en.wikipedia.org/wiki/List_of_Apollo_astronauts



See, e.g., <https://moz.com/blog/how-to-rank-on-google-home>.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby “essentially works the same way” as the Google Assistant.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

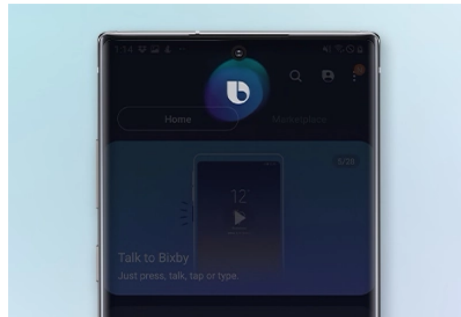
The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

Bixby is an [artificial intelligence](#) (AI) system developed by Samsung Electronics to make [device](#) interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung’s very own virtual assistant and the electronics giant’s new effort to offer an intelligent agent to compete with Google Assistant, Apple’s Siri, and Amazon’s Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and [deep learning](#) to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a [wide](#) variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung’s SmartThings hub and has

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple’s Siri, Amazon’s Alexa, and [Google Assistant](#). It’s called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

1[d]. “a CPU-based web browsing server, said web browsing server including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content descriptor file, said web browsing server configured to receive said digital data message from said media server and configured to access one of said web sites having the highest said rank number and to retrieve information from said one of said web sites;”

available at <https://www.businessinsider.com/bixby>.

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

See also, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8942094/>;
<https://www.computerworld.com/article/3294987/how-voice-technology-will-re-shape-business.html>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

1[e]. said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and

Samsung is infringing, and has infringed, element 1[e] by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet having the media server configured to generate an audio message representing said information and to transmit said audio message to said user.

The Samsung Accused Products includes said media server configured to generate an audio message representing said information and to transmit said audio message to said user.

For example, the media server in the Samsung Accused Products is configured to generate an audio message representing said information and transmits said audio message to said user.

How Conversational Actions work ↗

Unlike with traditional mobile and desktop apps, which use computer-centric paradigms, users interact with Actions for the Assistant through natural-sounding, back and forth conversation. Conversational Actions begin when invoked by a user and continue until the user chooses to exit (using predetermined phrases) or your Conversational Action denotes the end of the conversation.

During a conversation, user inputs are transformed from speech to text by the Assistant, and formed into JSON requests for natural language processing. These requests are sent to what's known as your **conversation fulfillment**.

Your conversation fulfillment parses the user's query into structured data, processes that data, and returns a webhook JSON response to the Assistant. The Assistant then processes and presents your response to the user.

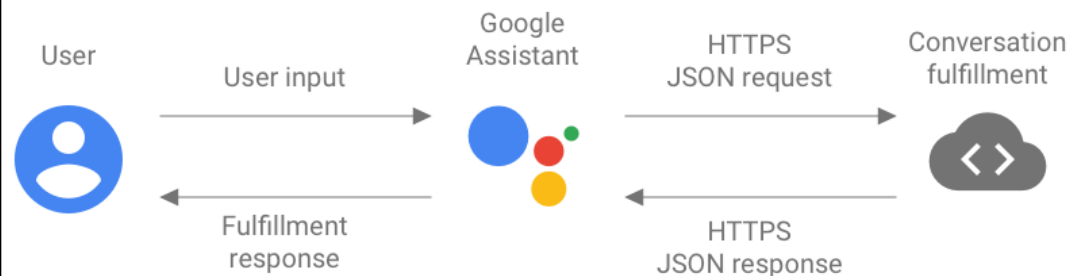
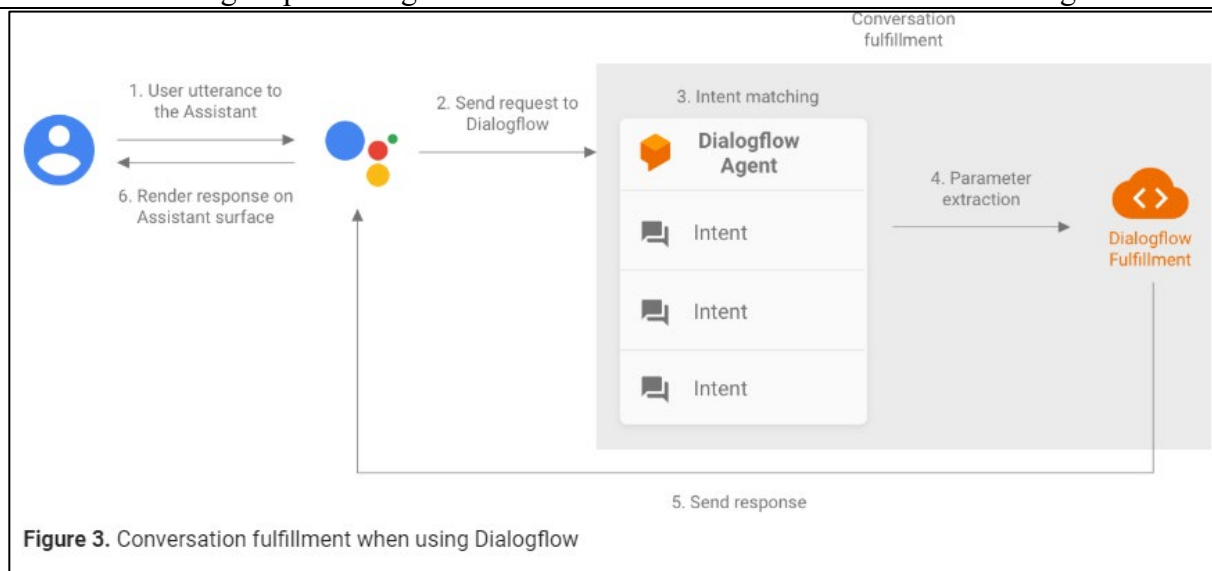


Figure 2. Conversation fulfillment is a JSON in-JSON out system

Building your own natural language processing service can be challenging, so we provide Dialogflow as a way to handle it for you. For developers who cannot use Dialogflow, we also provide the Actions SDK as a backup option with a separate, but related, development path.

See, e.g., <https://developers.google.com/assistant/conversational/overview>.

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



See, e.g., <https://developers.google.com/assistant/conversational/overview>.

Built on Google infrastructure

Dialogflow is a Google service that runs on Google Cloud Platform, letting you scale to hundreds of millions of users.

Optimized for the Google Assistant

Dialogflow is the most widely used tool to build Actions for more than 400M+ Google Assistant devices.

See, e.g., <https://dialogflow.com/>

Dialogflow is a natural language understanding platform that makes it easy to design and integrate a conversational user interface into your mobile app, web application, device, bot, interactive voice response system, and so on. Using Dialogflow, you can provide new and engaging ways for users to interact with your product.

Dialogflow can analyze multiple types of input from your customers, including text or audio inputs (like from a phone or voice recording). It can also respond to your customers in a couple of ways, either through text or with synthetic speech.

See, e.g., <https://cloud.google.com/dialogflow/docs/>

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



Powered by Google machine learning

Natural language understanding recognizes a user’s intent and extracts prebuilt entities such as time, date, and numbers. You can train your agent to identify custom entity types by providing a small dataset of examples. You can also use [40+ prebuilt agents](#) as templates.

See, e.g., <https://cloud.google.com/dialogflow/>.



Designed for a voice-first world

You can expand your conversational interface to recognize voice interactions and generate a voice response, all with a single API call. Powered by [Google Cloud Speech-to-Text](#) and [Cloud Text-to-Speech](#), it supports real-time streaming and synchronous modes.

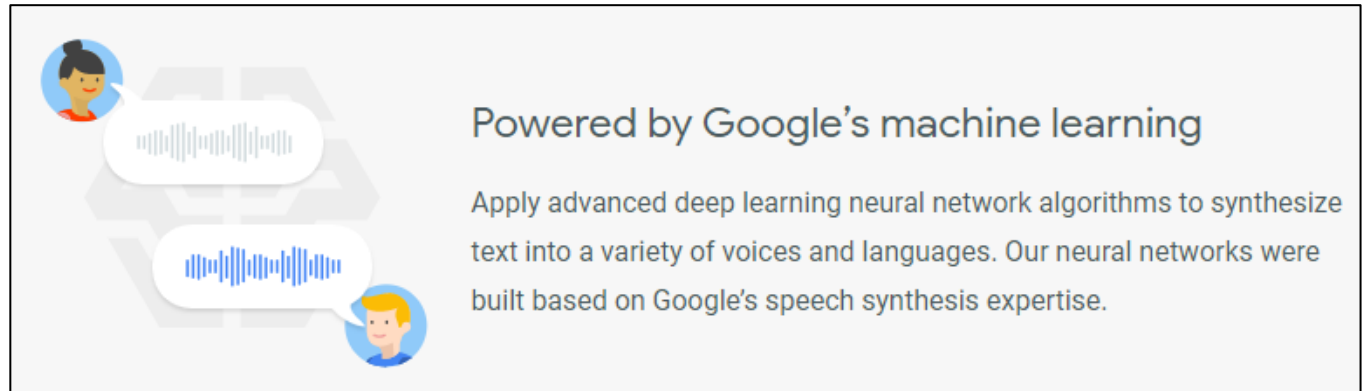
See, e.g., <https://cloud.google.com/dialogflow/>.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

High-fidelity speech synthesis

Google Cloud Text-to-Speech converts text into human-like speech in more than 180 voices across 30+ languages and variants. It applies groundbreaking research in speech synthesis (WaveNet) and Google's powerful neural networks to deliver high-fidelity audio. With this easy-to-use API, you can create lifelike interactions with your users that transform customer service, device interaction, and other applications.

See, e.g., <https://cloud.google.com/text-to-speech/>.



See, e.g., id.

Text-to-Speech allows developers to create natural-sounding, synthetic human speech as playable audio. You can use the audio data files you create using Text-to-Speech to power your applications or augment media like videos or audio recordings (in compliance with the [Google Cloud Platform Terms of Service](#) including compliance with all applicable law).

Text-to-Speech converts text or Speech Synthesis Markup Language (SSML) input into audio data like MP3 or LINEAR16 (the encoding used in WAV files).

See, e.g., <https://cloud.google.com/text-to-speech/docs/basics>.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Speech synthesis

The process of translating text input into audio data is called *synthesis* and the output of synthesis is called *synthetic speech*. Text-to-Speech takes two types of input: raw text or SSML-formatted data (discussed below). To create a new audio file, you call the `synthesize` endpoint of the API.

The speech synthesis process generates raw audio data as a base64-encoded string. You must decode the base64-encoded string into an audio file before an application can play it. Most platforms and operating systems have tools for decoding base64 text into playable media files.

See, e.g., id.

Creating voice audio files

[SEND FEEDBACK](#)

Text-to-Speech allows you to convert words and sentences into base64 encoded audio data of natural human speech. You can then convert the audio data into a playable audio file like an MP3 by decoding the base64 data. The Cloud Text-to-Speech API accepts input as raw text or [Speech Synthesis Markup Language \(SSML\)](#).

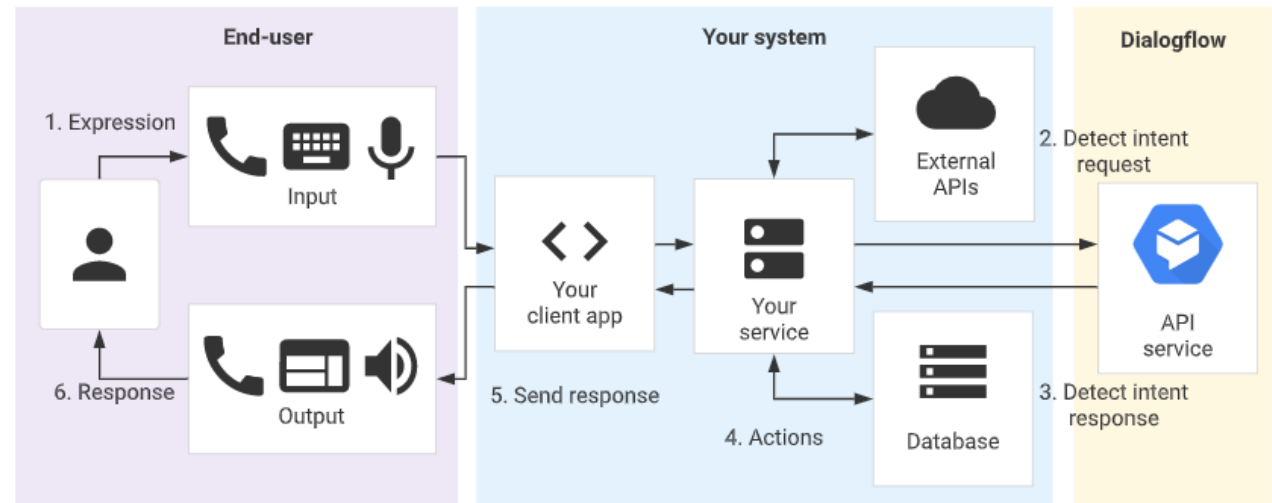
See, e.g., <https://cloud.google.com/text-to-speech/docs/create-audio>.

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”

API interactions

[SEND FEEDBACK](#)

If you are not using one of the [integration](#) options, you must write code that directly interacts with the end-user. You must also directly interact with Dialogflow's API for each conversational turn to send end-user expressions and receive intent matches. The following diagram shows the processing flow when interacting with the API.

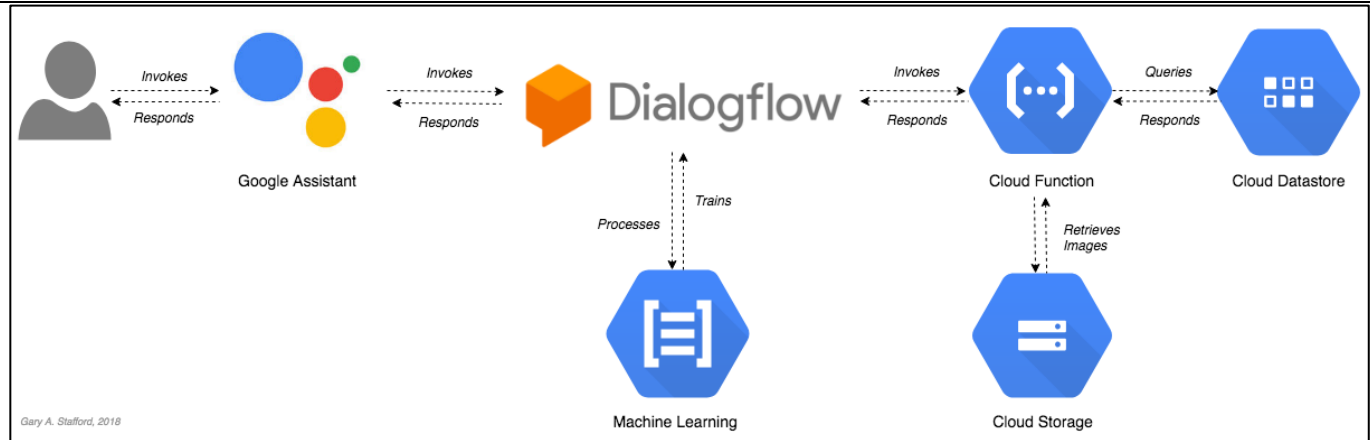


See, e.g., <https://cloud.google.com/dialogflow/docs/api-overview>.

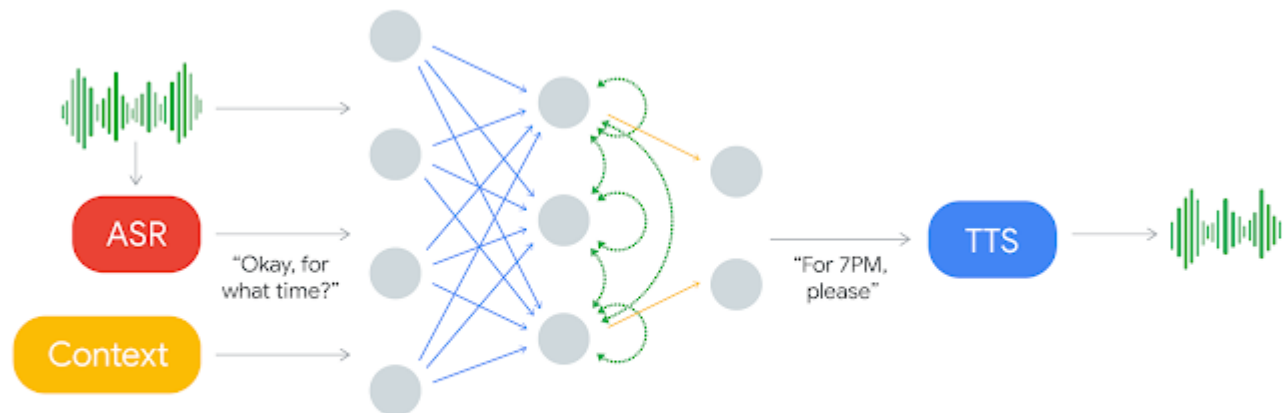
1. The end-user types or speaks an expression.
2. Your service sends this end-user expression to Dialogflow in a detect intent request message.
3. Dialogflow sends a detect intent response message to your service. This message contains information about the matched intent, the action, the parameters, and the response defined for the intent.
4. Your service performs actions as needed, like database queries or external API calls.
5. Your service sends a response to the end-user.
6. The end-user sees or hears the response.

See, e.g., *id.*

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



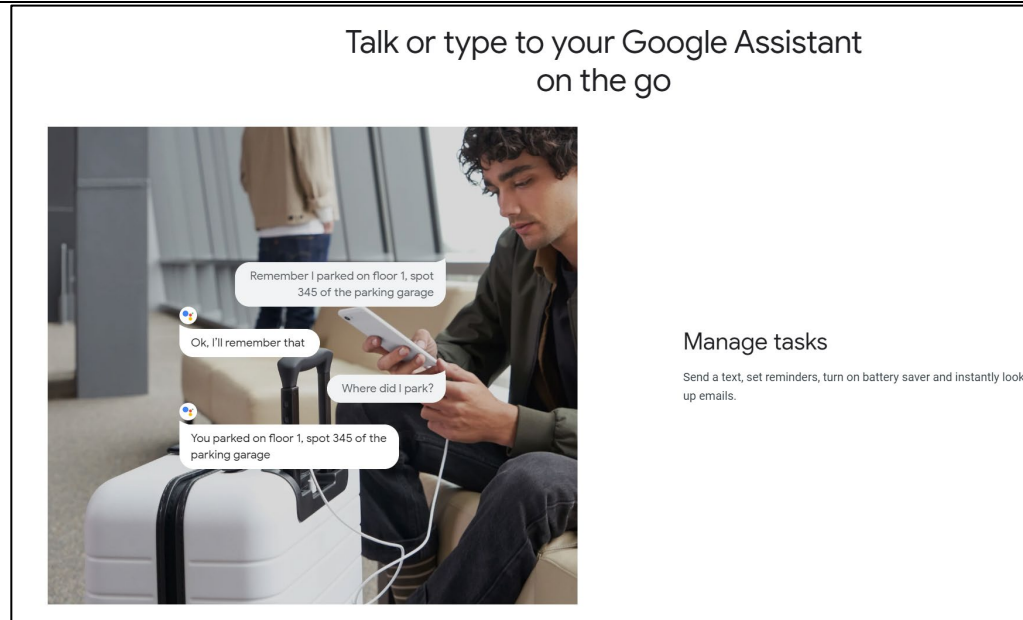
See, e.g., <https://programmaticponderings.com/2018/08/11/building-serverless-actions-for-google-assistant-with-google-cloud-functions-cloud-datastore-cloud-storage/>.



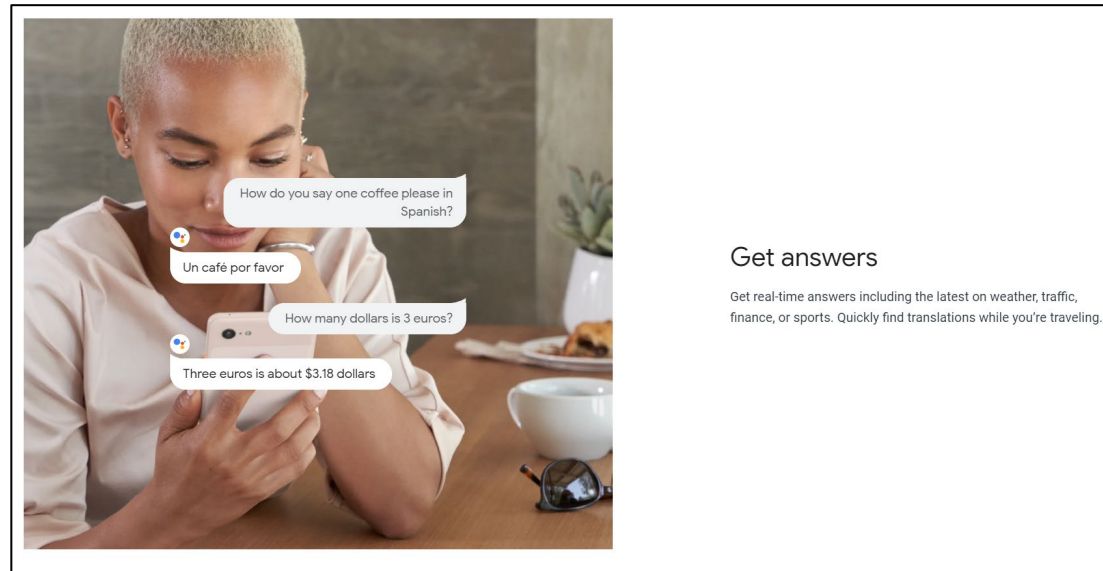
Incoming sound is processed through an ASR system. This produces text that is analyzed with context data and other inputs to produce a response text that is read aloud through the TTS system.

See, e.g., <https://ai.googleblog.com/2018/05/duplex-ai-system-for-natural-conversation.html>.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"



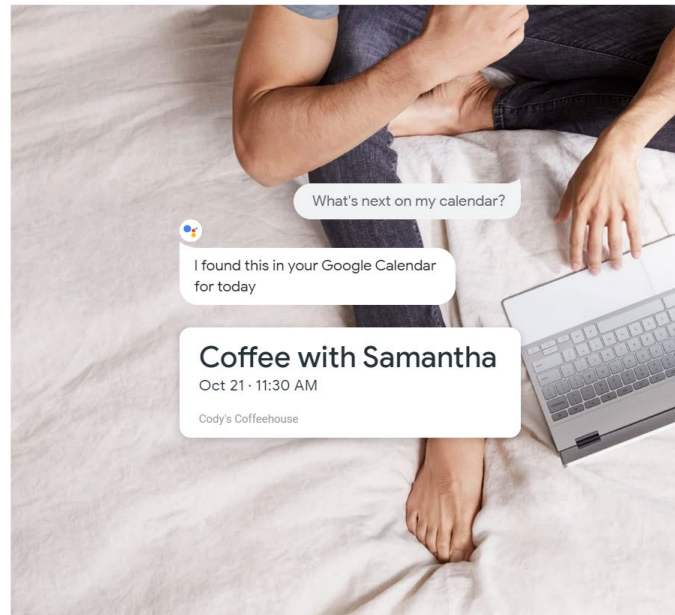
See, e.g., <https://assistant.google.com/platforms/phones/>.



See, e.g., *id.*

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”

Say "Hey Google" or press the
Assistant Key

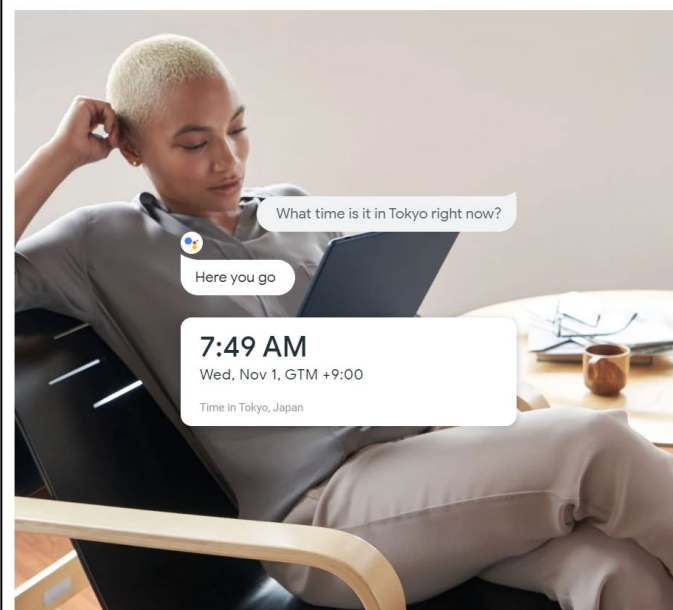


Manage tasks

Send an email, set reminders, manage your calendar, all without switching screens.

See, e.g., <https://assistant.google.com/platforms/laptops/>.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"



Get answers

Ask questions and get answers to things you want to know. Just type, talk or circle.

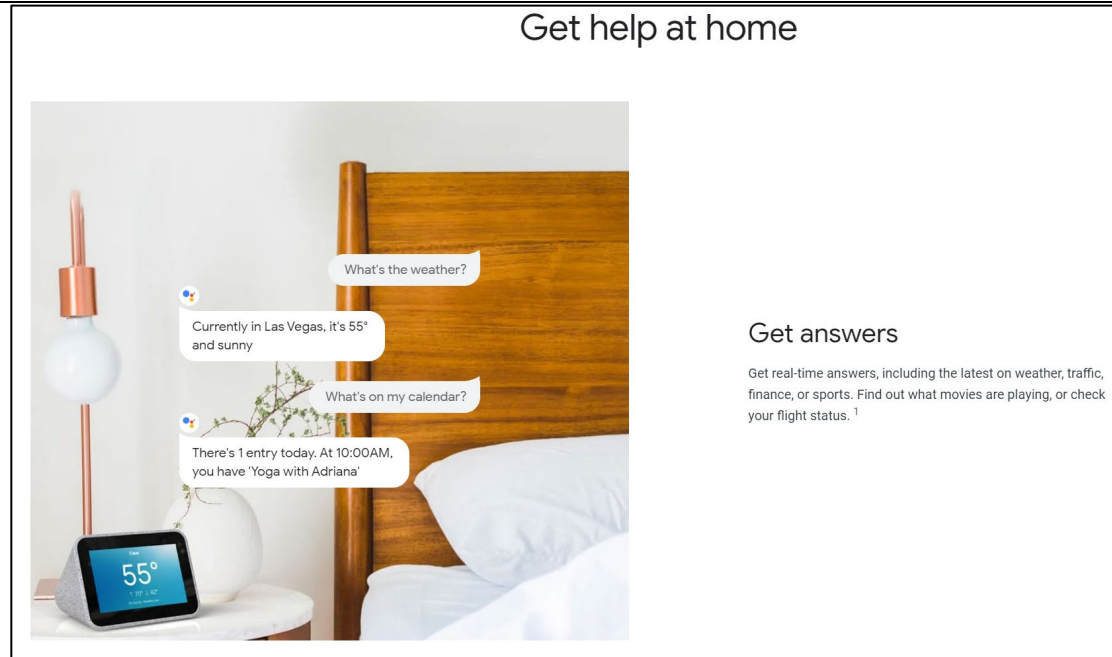
See, e.g., id.

The Google Assistant now in even more devices

With your Google Assistant in even more devices, it's easy to get things done. Just start with "Hey Google" to quickly get answers, manage daily tasks, and, of course, control your device or the rest of your smart home. Your Assistant can help free up your hands and time, so you can focus on the things that matter most.¹

See, e.g., <https://assistant.google.com/platforms/devices/>.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"



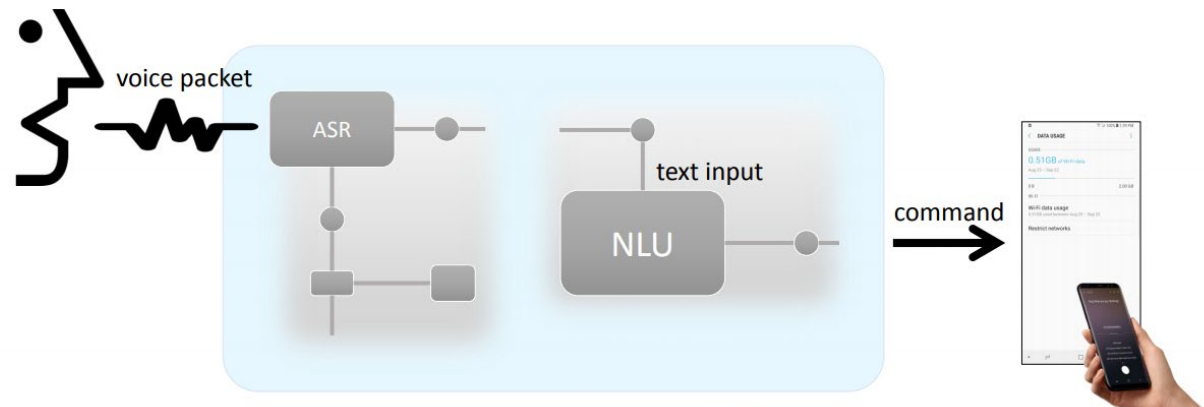
See, e.g., id.

On information and belief, the Samsung Accused Products in conjunction with Bixby generate an audio message representing said information and to transmit said audio message to said user.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Bixby v1.0: Minimalistic View

SAMSUNG



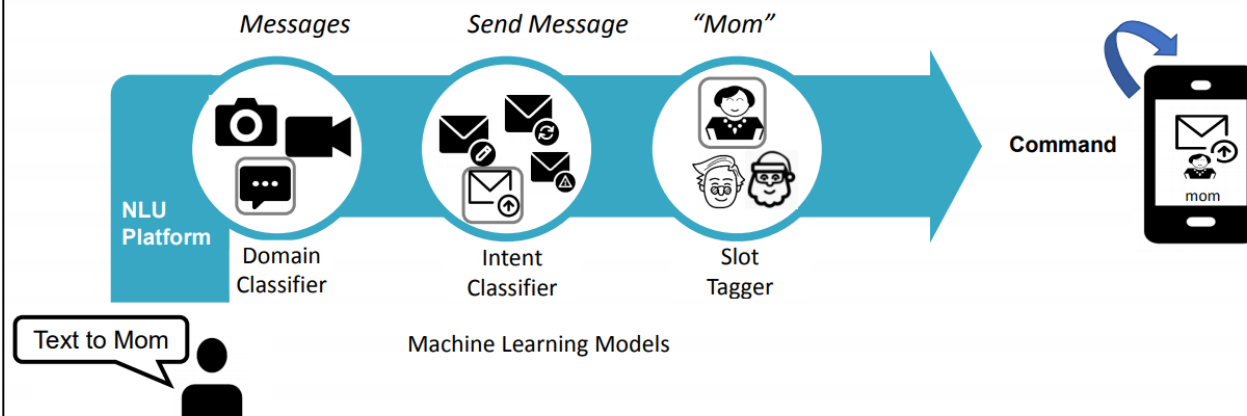
ASR: Automatic Speech Recognition
NLU: Natural Language Understanding

See, e.g., Samsung Voice Intelligence v5.5 Presentation at 9 (July 25, 2018), available at https://www.slideshare.net/vinutharani1995/samsung-voice-intelligencev55-107403316?from_action=save

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Traditional NLU Flow

SAMSUNG

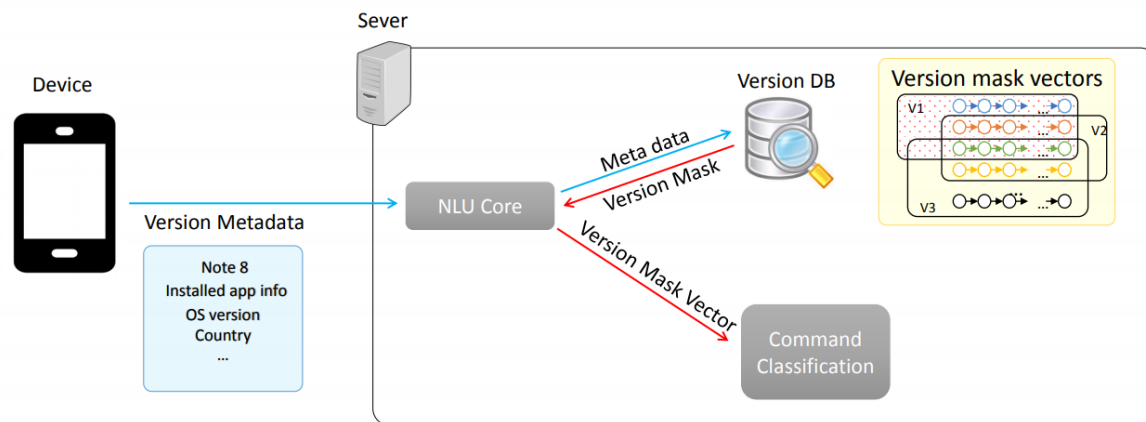


See, e.g., *id.* at 10.

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



See, e.g., *id.* at 21.

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

What to Know About Bixby

Doesn't have a gender. Bixby has neither gender nor sex and does not identify with any sexual orientation.

Does not possess a body. Bixby doesn't have a physical presence and is not human.

Lives in the cloud. Bixby does not have a physical location.

But knows what's going on in the world. Bixby can make pop culture and news references.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/design-guides/writing>

Research Phase

While you're creating your own capsule, narrow down what you want the user to be able to accomplish through Bixby while using their device and the cloud platform. Essentially, you're asking "What ability do I want to teach Bixby?"

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/managing-caps.planning-external>

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

For example, `spaceResorts`, local JavaScript files include all the necessary **action implementations** for each of the actions modeled, even sorting the various `*.js` files the same way as the action models. **JavaScript in this capsule is executed in the cloud through Bixby servers**, though JavaScript can also be executed on your server if your capsule uses remote **endpoints**. Additionally, the objects being returned from the calls are also in local JSON files, under the `code/lib` directory.

See, e.g., <https://bixbydevelopers.com/dev/docs/sample-capsules/walkthroughs/space-resorts>

Implementing JavaScript Actions

Functions are the implementations of actions. They actually execute the steps of a plan, by making computations or contacting external APIs. You first define inputs and outputs within an **action** first. You then implement functions using JavaScript to provide the necessary logic, operations, and to specify the same inputs and outputs as the action. **Local JavaScript is executed in the cloud on Bixby servers**, while remote JavaScript is executed on your own server.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/actions.js-actions>

Q. Will using Bixby eat up my mobile data, and is it possible to use it overseas?

Bixby only utilizes your mobile data when listening to a command, not before or after. As a result, the length of the command ultimately determines the amount of mobile data used.

See, e.g., <https://news.samsung.com/global/bixby-101-get-to-know-the-ins-and-outs-of-samsungs-intelligent-interface>

Do I need Wi-Fi or mobile data to use Bixby?

Yes, to use Bixby, you must be connected to a mobile data or Wi-Fi network.

See, e.g., <https://www.samsung.com/ca/support/mobile-devices/questions-about-bixby/>

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Introduction to Training for Natural Language

Bixby uses natural language (NL) from the user as input. You can improve Bixby's ability to understand NL input by training Bixby to understand real-world examples of natural language in Bixby Developer Studio (Bixby Studio). For example, in the [Quick Start Guide](#), you train the dice game to recognize "roll 2 6-sided dice". This phrase is an **utterance**. NL training is based on utterances that humans might type or say when interacting within Bixby. Utterances don't have to be grammatical and can include slang or colloquial language.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/training.intro-training>

Using SSML

Bixby's dialog can include a subset of tags from [Speech Synthesis Markup Language \(SSML\)](#), a W3C standard for enriching text-to-speech.

To use SSML, you must observe the following rules:

- SSML is **only** valid inside the `speech` key in [dialog templates](#).
- Speech **must** start with the `<speech>` tag and end with the `</speech>` closing tag. If these tags are not present, the speech will not be recognized as containing SSML.
- The speech string **must** be enclosed in quote marks, and quotes inside the string **must** be escaped with a `\` character.

See, e.g., <https://bixbydevelopers.com/dev/docs/reference/ref-topics/ssml>

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

Bixby Voice is easily activated. Users simply need to press and hold the dedicated hardware button on the side of the Galaxy S8, say "Bixby" or tap it on the Bixby Home screen to wake it up.

While most traditional smartphone-related tasks require touch activation, Bixby's multi-modality lets users control their phone using voice and touch controls interchangeably for maximized convenience. Utilizing natural language understanding, Bixby has the ability to adapt to the unique speaking style of the user. But if Bixby doesn't understand the user's command, it will ask for more information so it can complete the task, rather than giving up.

See, e.g., <https://news.samsung.com/global/a-new-way-to-interact-with-your-phone-bixby-the-galaxy-s8-intelligent-interface>

Speak naturally.

Bixby understands natural, conversational language along with context, like the email you're reading or the photo you just took. Simply talk the way you would to a friend to get what you need.

See, e.g., <https://www.samsung.com/us/explore/bixby/>

Make things happen.

Just say what you want, and Bixby will deliver. Sure you can ask for dinner reservation, but you can also call a ride all with your voice.

See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/>

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



“What’s the status of flights from SFO to LAX?”

See, e.g., id.



“What’s the time difference between Paris and Seoul?”

See, e.g., id.

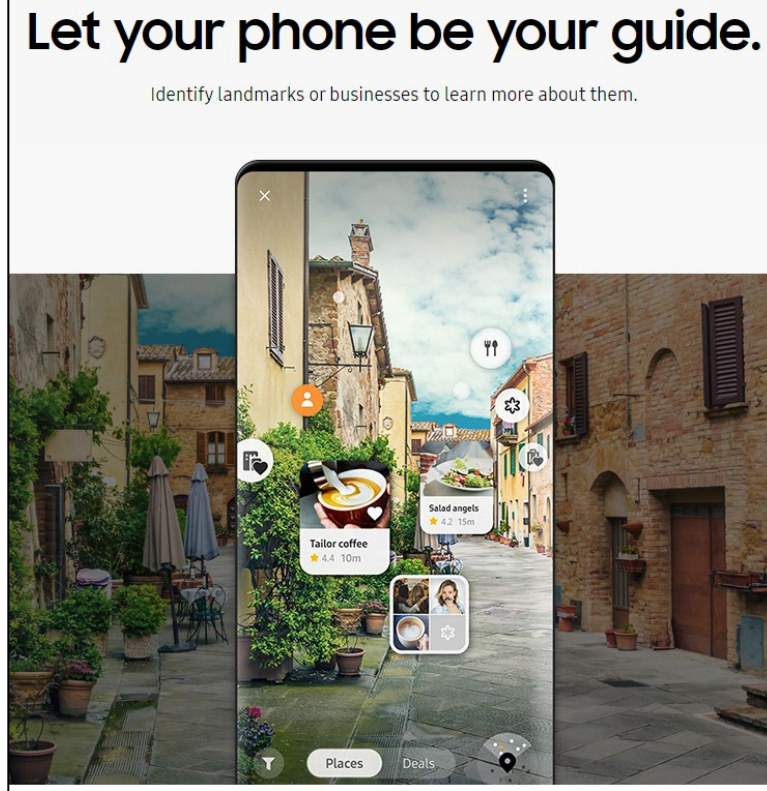
1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



“Give me the directions to 645 Clyde Ave.”

See, e.g., id.

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/vision/>

1[e]. "said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and"

You can search the internet

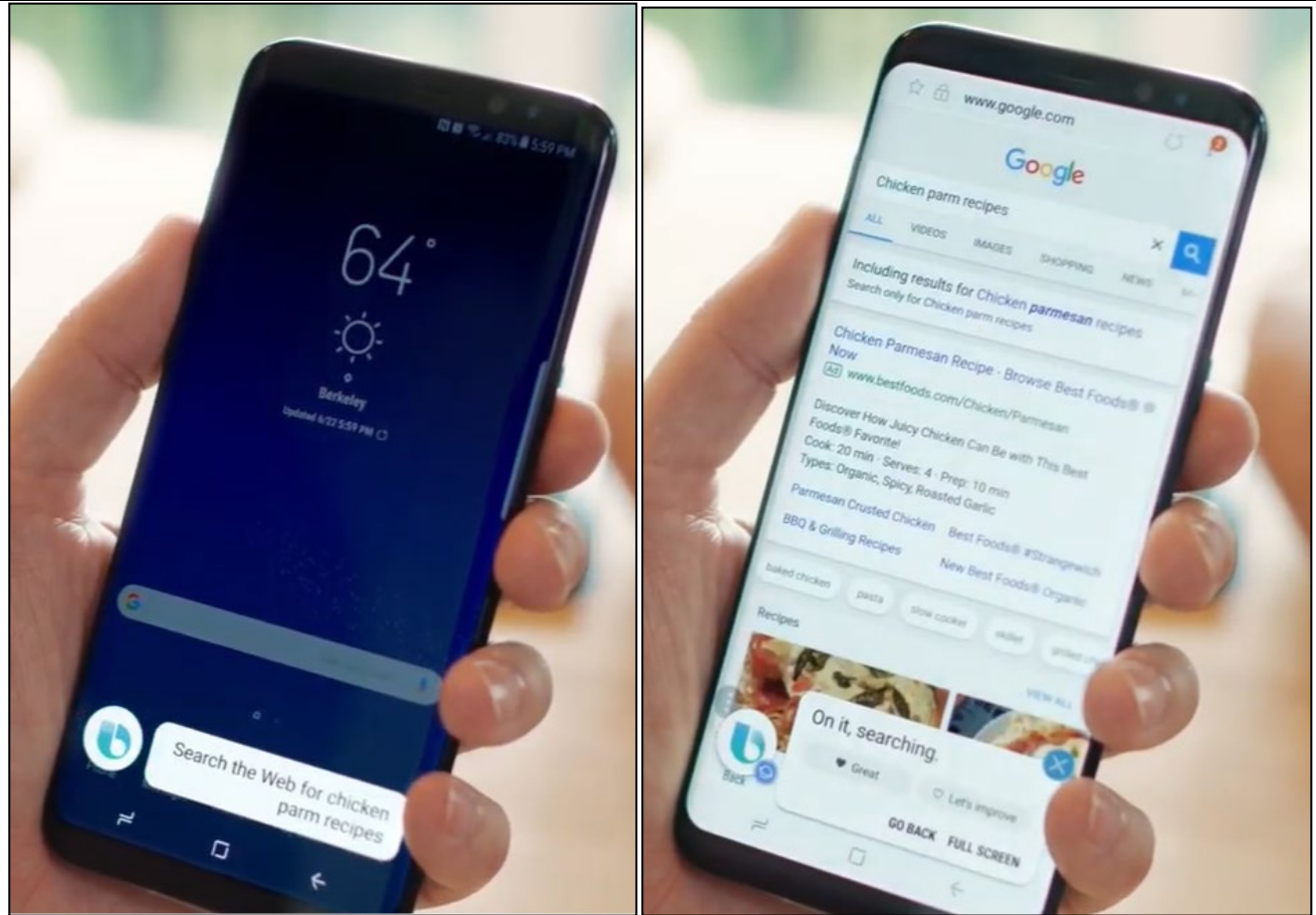
Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>

1[e]. “said media server configured to generate an audio message representing said information and to transmit said audio message to said user; and”



See, e.g., <https://www.youtube.com/watch?v=xISIMl-77TQ>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

1[f]. a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.

Samsung is infringing, and has infringed, element 1[f] by making, using selling, offering to sell, or importing an Internet voice browsing system for gathering information from web sites on the Internet having a polling mechanism as described in element 1[f].

The Samsung Accused Products include a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.

For example, the Samsung Accused Products include a polling mechanism that periodically polls said web sites and adjust the rankings of that web site based on the response or time of the response. The Samsung Accused Products use a number of criteria in updating its ranks to its web sites including whether a web site responds to a query, response time, and other unexpected responses that occur during polling.

How Search algorithms work


With the amount of information available on the web, finding what you need would be nearly impossible without some help sorting through it. Google ranking systems are designed to do just that: sort through hundreds of billions of webpages in our Search index to find the most relevant, useful results in a fraction of a second, and present them in a way that helps you find what you're looking for.

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

General guidelines

Help Google find your pages

- Ensure that all pages on the site can be reached by a link from another findable page. Make sure the referring link includes either text or, for images, an **alt** attribute, that is relevant to the target page. Crawlable links are **<a>** tags with an **href** attribute.
- Provide a **sitemap file** with links that point to the important pages on your site. Also provide a page with a human-readable list of links to these pages (sometimes called a site index or site map page).
- Limit the number of links on a page to a reasonable number (a few thousand at most).
- Make sure that your web server correctly supports the **If-Modified-Since** HTTP header. This feature directs your web server to tell Google if your content has changed since we last crawled your site. Supporting this feature saves you bandwidth and overhead.
- Use the robots.txt file on your web server to manage your crawling budget by preventing crawling of infinite spaces such as search result pages. Keep your robots.txt file up to date. [Learn how to manage crawling with the robots.txt file](#). Test the coverage and syntax of your robots.txt file using the [robots.txt Tester](#) .

See, e.g., <https://developers.google.com/search/docs/advanced/guidelines/webmaster-guidelines>.

Context and settings

Information such as your location, past Search history and Search settings all help us to tailor your results to what is most useful and relevant for you in that moment.

We use your country and location to deliver content relevant for your area. For instance, if you're in Chicago and you search "football" Google will most likely show you results about American football and the Chicago Bears first. Whereas if you search "football" in London, Google will rank results about soccer and the Premier League higher. [Search settings](#) are also an important indicator of which results you're likely to find useful, such as if you set a preferred language or opted in to [SafeSearch](#) (a tool that helps filter out explicit results).

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

These ranking systems are made up of not one, but a whole series of algorithms. To give you the most useful information, Search algorithms look at many factors, including the words of your query, relevance and usability of pages, expertise of sources, and your location and settings. The weight applied to each factor varies depending on the nature of your query—for example, the freshness of the content plays a bigger role in answering queries about current news topics than it does about dictionary definitions.

To help ensure Search algorithms meet high standards of relevance and quality, we have a [rigorous process](#) that involves both live tests and thousands of trained external Search Quality Raters from around the world. These Quality Raters follow strict [guidelines](#) that define our goals for Search algorithms and are publicly available for anyone to see.

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

Usability of webpages

When ranking results, Google Search also evaluates whether webpages are easy to use. When we identify persistent user pain points, we develop algorithms to promote more usable pages over less usable ones, all other things being equal.

These algorithms analyze signals that indicate whether all our users are able to view the result, like whether the site [appears correctly in different browsers](#); whether it is [designed for all device types and sizes, including desktops, tablets, and smartphones](#); and whether the [page loading times work well for users with slow Internet connections](#).

Since website owners can improve the usability of their site, we work hard to inform site owners in advance of significant, actionable changes to our Search algorithms. For example, in January 2018 we announced that our algorithms would begin to consider the “page speed” of sites, six months before the changes went live. To aid website owners, we provided detailed guidance and tools like [PageSpeed Insights](#) and [Webpagetest.org](#) so site owners could see what (if anything) they needed to adjust to make their sites more mobile friendly.

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

About PageSpeed Insights

PageSpeed Insights (PSI) reports on the performance of a page on both mobile and desktop devices, and provides suggestions on how that page may be improved.

PSI provides both lab and field data about a page. Lab data is useful for debugging performance issues, as it is collected in a controlled environment. However, it may not capture real-world bottlenecks. Field data is useful for capturing true, real-world user experience - but has a more limited set of metrics. See [How To Think About Speed Tools](#) for more information on the 2 types of data.

See, e.g., <https://developers.google.com/speed/docs/insights/v5/about>.

Performance score

At the top of the report, PSI provides a score which summarizes the page's performance. This score is determined by running [Lighthouse](#) to collect and analyze [lab data](#) about the page. A score of 90 or above is considered good. 50 to 90 is a score that needs improvement, and below 50 is considered poor.

Real-World Field Data

When PSI is given a URL, it will look it up in the [Chrome User Experience Report](#) (CrUX) dataset. If available, PSI reports the [First Contentful Paint](#) (FCP), [First Input Delay](#) (FID), [Largest Contentful Paint](#) (LCP), and [Cumulative Layout Shift](#) (CLS) metric data for the origin and potentially the specific page URL.

See, e.g., <https://developers.google.com/speed/docs/insights/v5/about>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

Classifying Good, Needs Improvement, Poor

PSI also classifies field data into 3 buckets, describing experiences deemed good, needs improvement, or poor. PSI sets the following thresholds for good / needs improvement / poor, based on our analysis of the CrUX dataset:

	Good	Needs Improvement	Poor
FCP	[0, 1800ms]	(1800ms, 3000ms]	over 3000ms
FID	[0, 100ms]	(100ms, 300ms]	over 300ms
LCP	[0, 2500ms]	(2500ms, 4000ms]	over 4000ms
CLS	[0, 0.1]	(0.1, 0.25]	over 0.25

See, e.g., <https://developers.google.com/speed/docs/insights/v5/about>.

Core Web Vitals

Core Web Vitals are the subset of Web Vitals that apply to all web pages, should be measured by all site owners, and will be surfaced across all Google tools. Each of the Core Web Vitals represents a distinct facet of the user experience, is measurable [in the field](#), and reflects the real-world experience of a critical [user-centric](#) outcome.

The metrics that make up Core Web Vitals will [evolve](#) over time. The current set for 2020 focuses on three aspects of the user experience—*loading*, *interactivity*, and *visual stability*—and includes the following metrics (and their respective thresholds):

See, e.g., <https://web.dev/vitals/>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”



See, e.g., <https://web.dev/vitals/>.

- **Largest Contentful Paint (LCP)**: measures *loading* performance. To provide a good user experience, LCP should occur within **2.5 seconds** of when the page first starts loading.
- **First Input Delay (FID)**: measures *interactivity*. To provide a good user experience, pages should have a FID of **100 milliseconds** or less.
- **Cumulative Layout Shift (CLS)**: measures *visual stability*. To provide a good user experience, pages should maintain a CLS of **0.1** or less.

For each of the above metrics, to ensure you're hitting the recommended target for most of your users, a good threshold to measure is the **75th percentile** of page loads, segmented across mobile and desktop devices.

See, e.g., <https://web.dev/vitals/>.

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On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby “essentially works the same way” as the Google Assistant.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

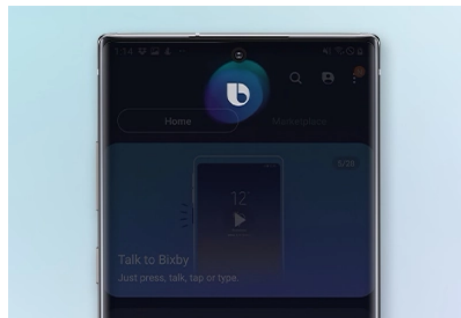
The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

available at <https://www.businessinsider.com/bixby>.

Bixby is an [artificial intelligence](#) (AI) system developed by Samsung Electronics to make [device](#) interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung’s very own virtual assistant and the electronics giant’s new effort to offer an intelligent agent to compete with Google Assistant, Apple’s Siri, and Amazon’s Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and [deep learning](#) to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a [wide](#) variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung’s SmartThings hub and has

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

1[f]. “a polling mechanism configured to periodically send a polling digital data message to each one of said web sites and to receive a response, each of said web sites thereby becoming a polled web site, said polling mechanism configured to decrease said rank number of said polled web site if no response is received from said polled web site, said polling mechanism also configured to decrease said rank number of said polled web site if an unexpected response is received from said polled web site, and said polling mechanism also configured to decreases said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and [Google Assistant](#). It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

available at <https://www.businessinsider.com/bixby>.

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

See also, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8942094/>;
<https://www.computerworld.com/article/3294987/how-voice-technology-will-re-shape-business.html>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

2[preamble]. A method for using voice commands to browse Internet web sites, comprising the steps of:

To the extent that the preamble is a limitation, Samsung is infringing, and has infringed, by performing a method for using voice commands to browse Internet web sites comprising the steps of claim 2 listed thereafter.

The Samsung Accused Products meet this limitation when they are used for their intended and marketed purpose by Samsung, Google and/or third parties.

For example, the following exemplary documents provide support to demonstrate the Google Assistant Product practices this claim:

Andrew Nusca, *How voice recognition will change the world* (Nov. 4, 2011), available at <https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/>.

Gene Munster, Will Thompson, *Annual Digital Assistant IQ Test – Siri, Google Assistant, Alexa, Cortana* (Jul. 25, 2018), available at <https://loupventures.com/annual-digital-assistant-iq-test-siri-google-assistant-alexa-cortana/>.

Extending the assistant (Jan. 29, 2019), available at <https://developers.google.com/actions/extending-the-assistant>.

Voice Browsing (Jan. 29, 2019), available at <https://www.w3.org/standards/webofdevices/voice>.

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Further, the following exemplary documents provide support to demonstrate the Samsung Accused Products practice this claim:

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2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

Winston Chen, Speaking to the Web with the Web Speech API (Aug. 17, 2017), available at <https://medium.com/samsung-internet-dev/speaking-to-the-web-with-the-web-speech-api-980d12d34244>.

Dieter Bohn, Here’s what we know Samsung’s Bixby assistant can do on the Galaxy S8 (Mar. 29, 2017), available at <https://www.theverge.com/2017/3/29/15097744/samsung-bixby-galaxy-s8-assistant-vs-siri-alexa-android>.

On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby “essentially works the same way” as the Google Assistant.

How Bixby works

Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

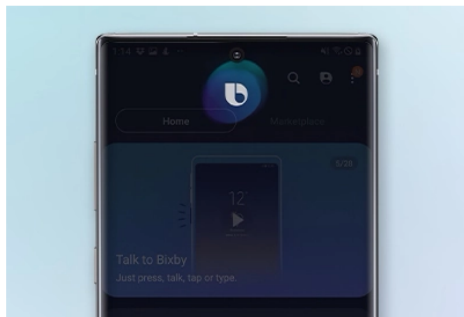
The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

Bixby is an artificial intelligence (AI) system developed by Samsung Electronics to make device interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and deep learning to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a wide variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and Google Assistant. It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

available at <https://www.businessinsider.com/bixby>.

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First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

See claim 1[preamble].

Further, Google indicates that the Google Assistant, as implemented on the Samsung Accused Products, will retrieve information from pre-selected web sites in response to user speech commands. For example, users can verbally request information and customize the sources from which said information is retrieved.

The Rise of Voice Activated Search

To understand how search works on digital assistants, it helps to understand a bit of their history

See, e.g., <https://pedestalsearch.com/seo-rank-google-digital-assistant/>.

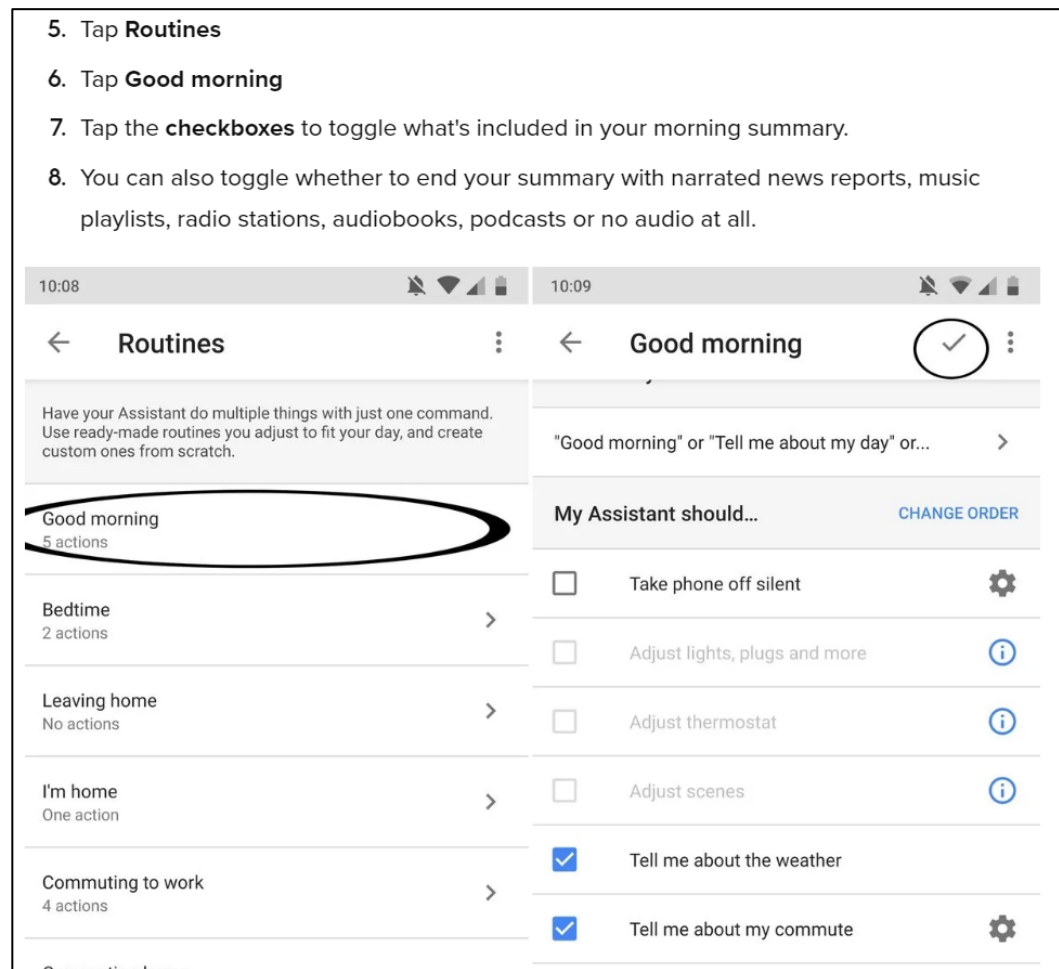
How to customize your "Good morning" bulletin

You can use Google Assistant to give you a briefing on everything you need to know to start your day, from weather forecasts, calendar reminders, and a preview of your work commute. If you don't need all that, you can [customize](#) it to suit your needs.

1. Launch Google Assistant by **long pressing the Home Button**.
2. Press the **compass icon** in the top-right corner of the Google Assistant window.
3. Tap the **menu icon** in the top-right corner of the Google Assistant window.
4. Tap **Settings**

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

See, e.g., <https://www.androidcentral.com/how-set-up-google-assistant>.



See, e.g., *id.*

Once you've set everything up, all you need to do is say "Good morning" to Google Assistant.

See, e.g., *id.*

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

How to customize Google Assistant's news sources

Google Assistant can help you keep up to date on what's going on in the world with its narrated news service. It pulls radio news reports from reliable news sources which you can listen to after your daily briefing or by saying "OK Google, listen to news". If this seems like a valuable feature to you, you'll definitely want to customize your news sources.

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5. Tap **News**.

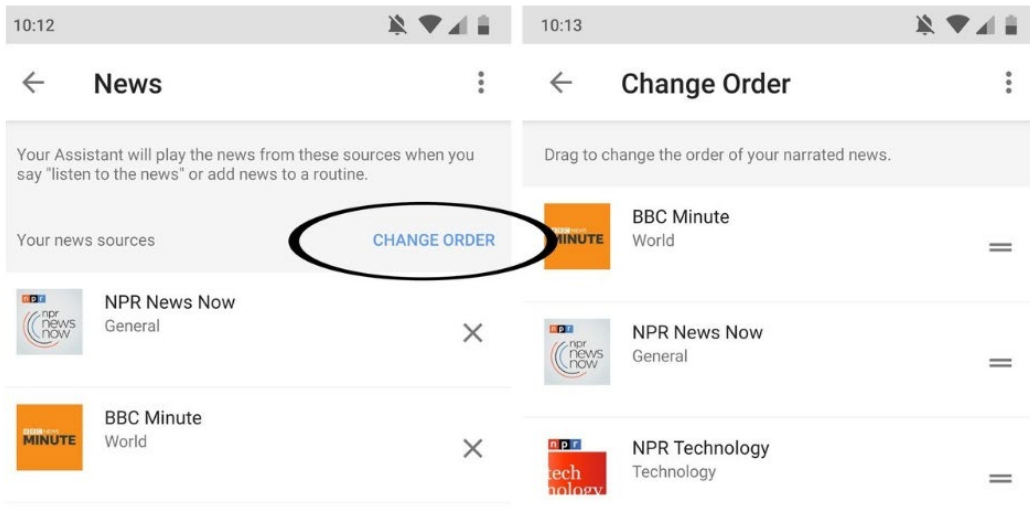
See, e.g., id.

6. Tap **Add news sources**
7. Swipe up to **scroll through the list of news sources**.
8. **Check the box** next to your desired news sources.

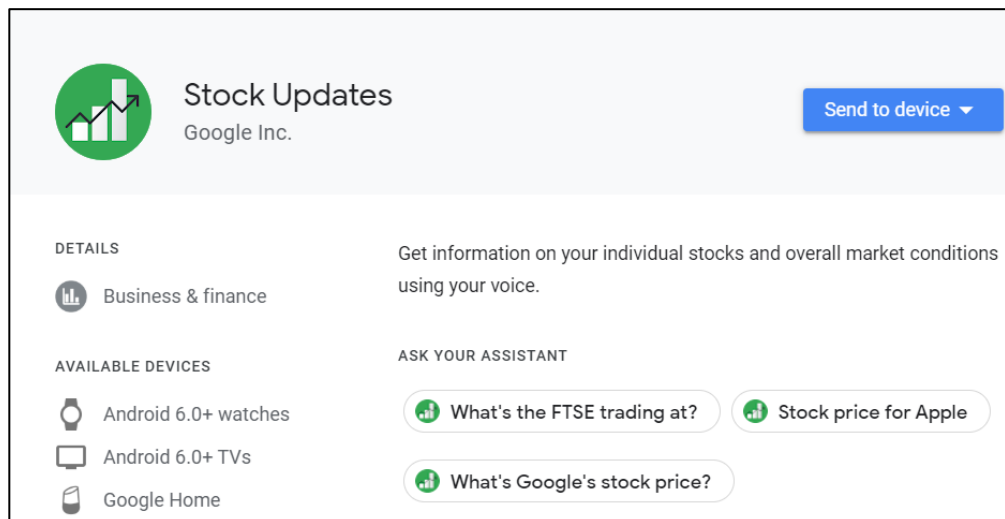
See, e.g., id.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

9. Tap the **back arrow**.
10. Tap **Change Order**
11. Tap and drag the **news sources** in the order you want to listen to them.

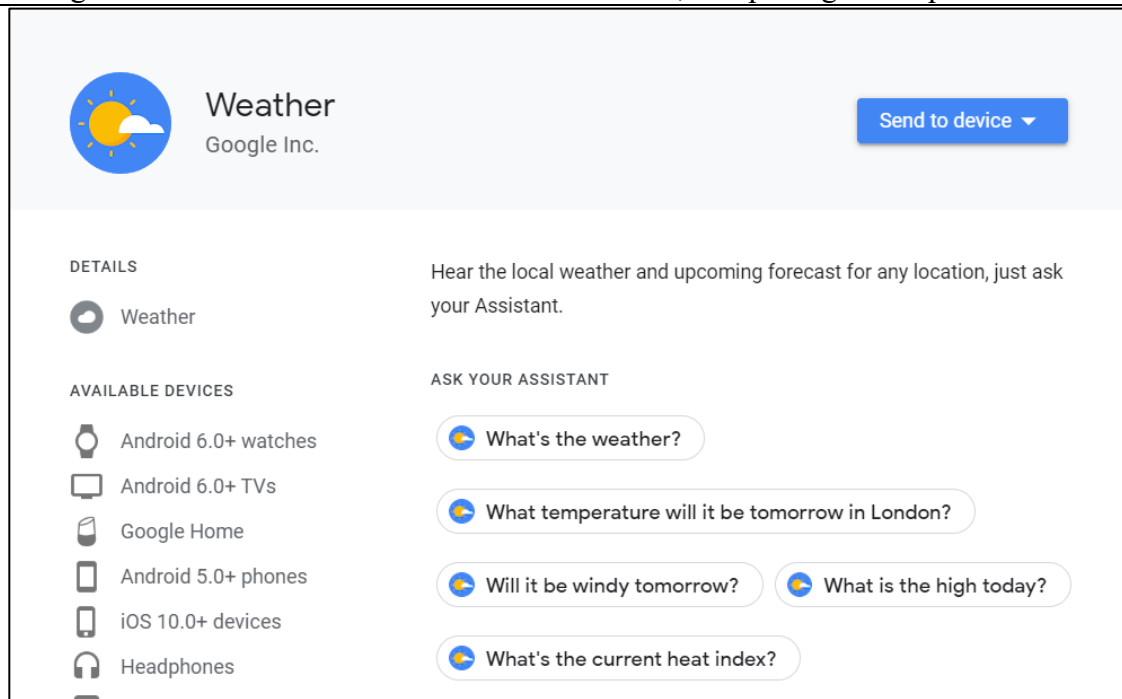


See, e.g., id.



See, e.g., https://assistant.google.com/services/a/uid/0000002776b0d637?hl=en_us.

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See, e.g., <https://assistant.google.com/services/a/uid/0000004d5731f294?hl=en-US>.

The Samsung Accused Products retrieve information in response to speech commands.

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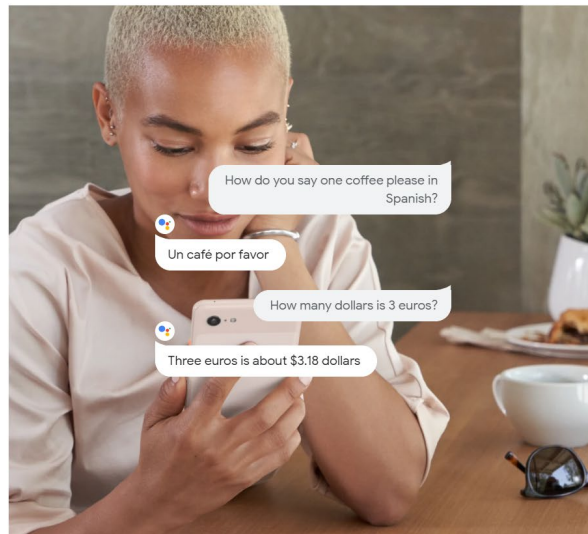
Talk or type to your Google Assistant
on the go



Manage tasks

Send a text, set reminders, turn on battery saver and instantly look up emails.

See, e.g., <https://assistant.google.com/platforms/phones/>.



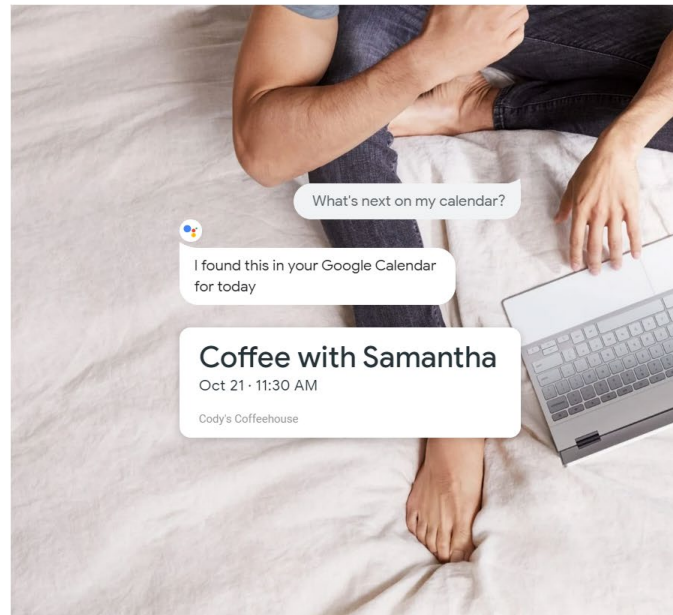
Get answers

Get real-time answers including the latest on weather, traffic, finance, or sports. Quickly find translations while you're traveling.

See, e.g., *id.*

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

Say "Hey Google" or press the
Assistant Key

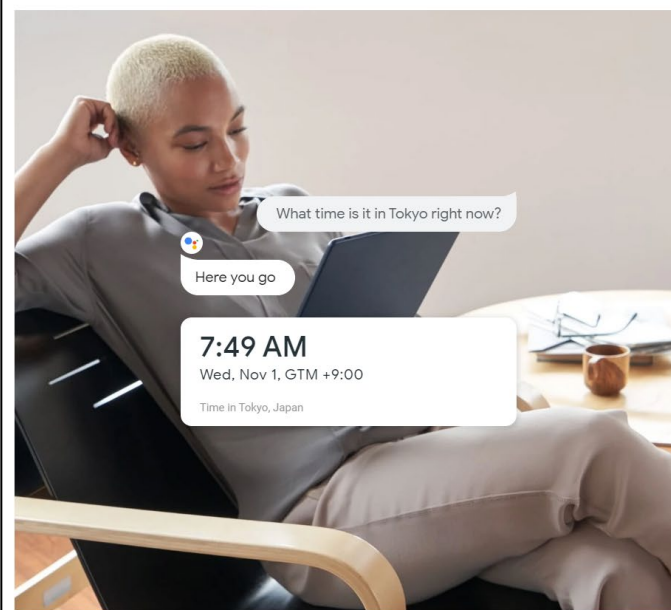


Manage tasks

Send an email, set reminders, manage your calendar, all without switching screens.

See, e.g., <https://assistant.google.com/platforms/laptops/>.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"



Get answers

Ask questions and get answers to things you want to know. Just type, talk or circle.

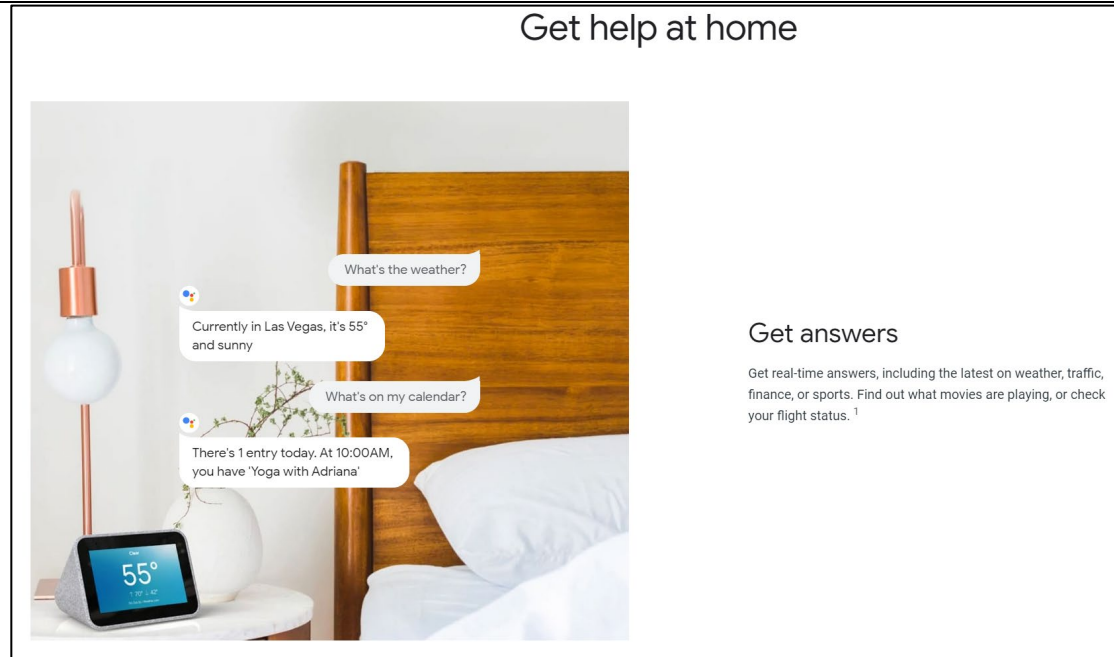
See, e.g., id.

The Google Assistant now in even more devices

With your Google Assistant in even more devices, it's easy to get things done. Just start with "Hey Google" to quickly get answers, manage daily tasks, and, of course, control your device or the rest of your smart home. Your Assistant can help free up your hands and time, so you can focus on the things that matter most.¹

See, e.g., <https://assistant.google.com/platforms/devices/>.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”



See, e.g., id.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"



Local Information

"What's the weather right now?"

"How's the traffic to work?"

"Give me directions to the airport"

"Find the closest ATM"

"What time does the post office close?"


"Call the nearest pharmacy"

"Will it rain tomorrow?"

"Find movies playing nearby"

See, e.g., <https://assistant.google.com/learn/>.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

		 <h3>Quick answers</h3> <p>"How many ounces are in a pound?"</p> <p>"What's 20% of 47?"</p> <p>"How do you say hello in Chinese?"</p> <p>"How much protein is in an egg?"</p> <p>"What time is it in London?"</p> <p>"What's on my schedule today?"</p> <p>"When is sunset?"</p> <p>"What is the S&P 500 trading at?"</p>	
	<p><i>See, e.g., id.</i></p>		

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"



Music and News

"Play workout music"

"Play Today's Top Hits on Spotify"

"Tell me the latest news"

"Play NPR news summary"

"Listen to ESPN SportsCenter"

"Play rain sounds"

"Listen to Hidden Brain"

"Set volume to 3"

See, e.g., id.

How to customize your "Good morning" bulletin

You can use Google Assistant to give you a briefing on everything you need to know to start your day, from weather forecasts, calendar reminders, and a preview of your work commute. If you don't need all that, you can [customize](#) it to suit your needs.

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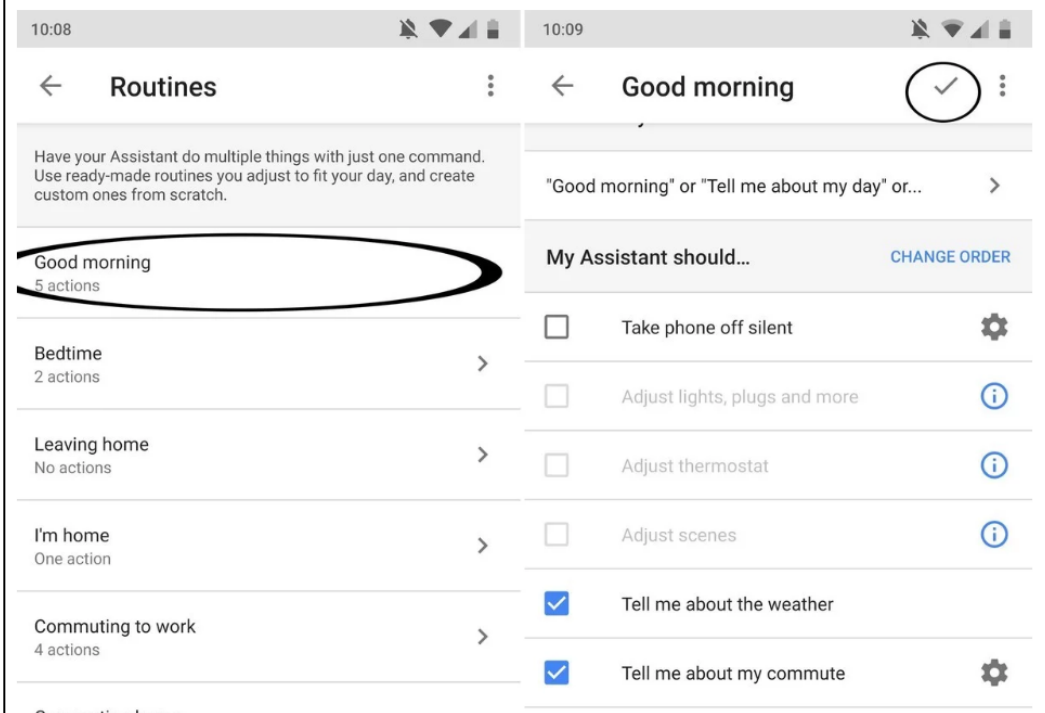
2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

5. Tap **Routines**

6. Tap **Good morning**

7. Tap the **checkboxes** to toggle what's included in your morning summary.

8. You can also toggle whether to end your summary with narrated news reports, music playlists, radio stations, audiobooks, podcasts or no audio at all.



See, e.g., id.

Once you've set everything up, all you need to do is say "Good morning" to Google Assistant.

See, e.g., id.

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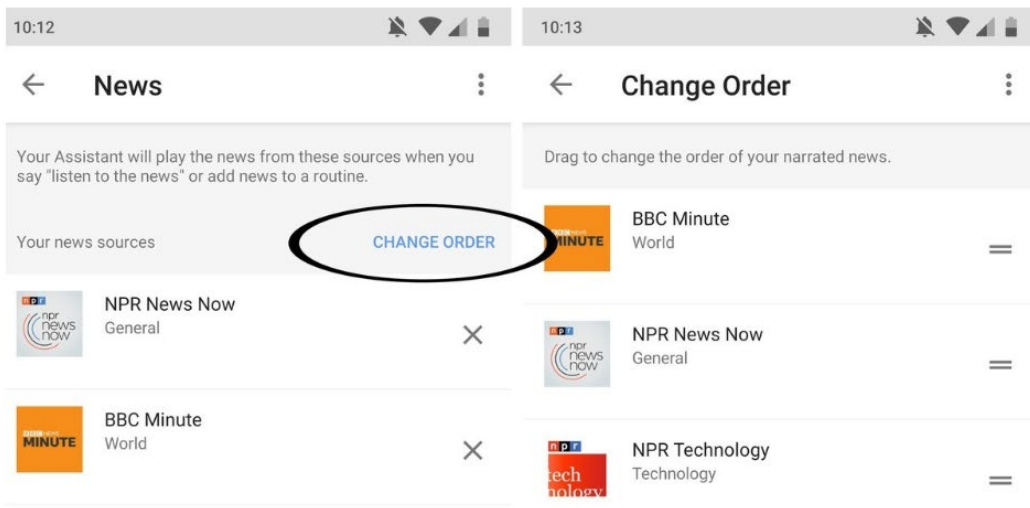
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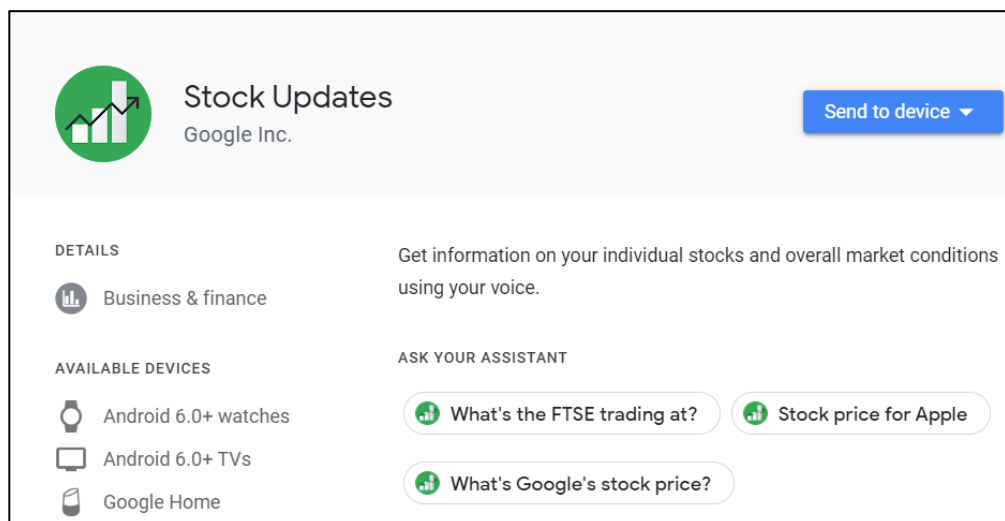
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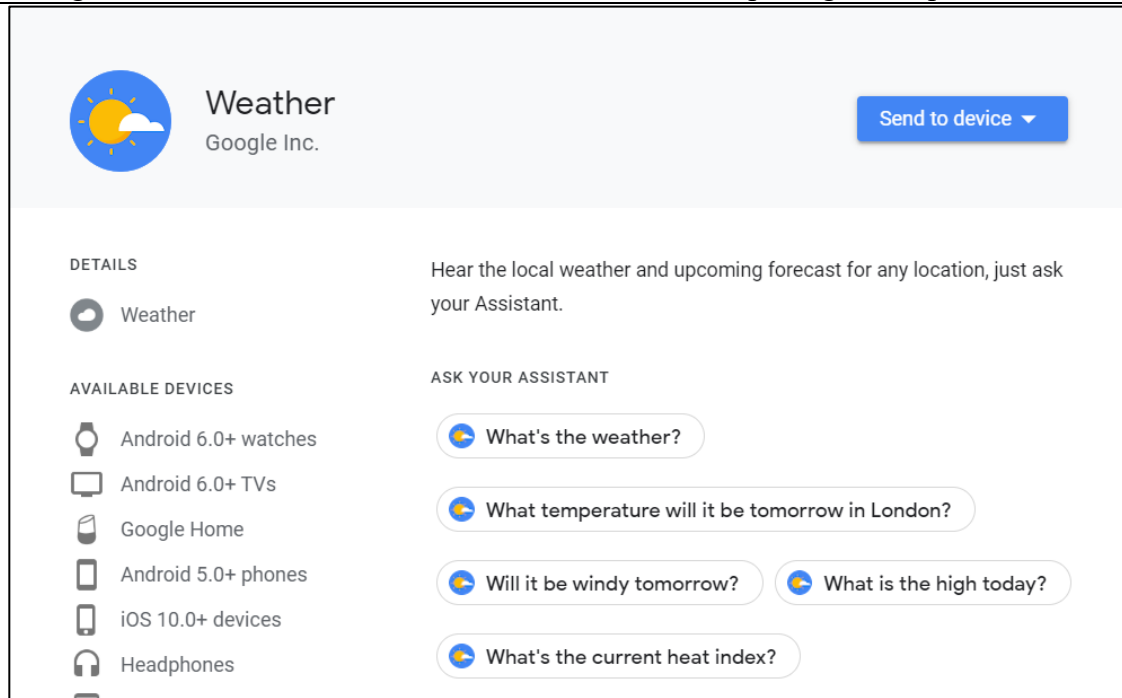


See, e.g., id.



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See, e.g., <https://assistant.google.com/services/a/uid/0000004d5731f294?hl=en-US>.

The Samsung Accused Products in conjunction with Google Assistant, and or voice search, also retrieve information from pre-selected websites as they have already been crawled and indexed before information is retrieved from them.

News briefings technical requirements

We can onboard your news briefing to Google Assistant if it adheres to both our [eligibility and availability guidelines](#) and the following technical requirements:

- Expose a valid XML feed that meets [RSS 2.0 specifications](#) and [News briefings on Assistant specifications](#).
- Ensure [GoogleBot](#) can access your RSS news feed and media files, such as audio or video. In order to comply, all of your feeds and files must not require a login. Furthermore, none of them can use `robots.txt` or noindex robots meta tags to block GoogleBot.

See, e.g., <https://developers.google.com/news/assistant/newsbriefings/technical-requirements>.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

Googlebot

Googlebot is Google's web crawling bot (sometimes also called a "spider"). [Crawling](#) is the process by which Googlebot discovers new and updated pages to be added to the Google index.

We use a huge set of computers to fetch (or "crawl") billions of pages on the web. Googlebot uses an algorithmic process: computer programs determine which sites to crawl, how often, and how many pages to fetch from each site.

See, e.g., <https://support.google.com/webmasters/answer/182072>.

Before you search, web crawlers gather information from across hundreds of billions of webpages and organize it in the Search index.

See, e.g., <https://www.google.com/search/howsearchworks/crawling-indexing/>.

The crawling process begins with a list of web addresses from past crawls and sitemaps provided by website owners. As our crawlers visit these websites, they use links on those sites to discover other pages. The software pays special attention to new sites, changes to existing sites and dead links. Computer programs determine which sites to crawl, how often and how many pages to fetch from each site.

See, e.g., id.

When crawlers find a webpage, our systems render the content of the page, just as a browser does. We take note of key signals — from keywords to website freshness — and we keep track of it all in the Search index. The Google Search index contains hundreds of billions of webpages and is well over 100,000,000 gigabytes in size. It's like the index in the back of a book — with an entry for every word seen on every web page we index. When we index a web page, we add it to the entries for all of the words it contains.

See, e.g., id.

With the Knowledge Graph, we're continuing to go beyond keyword matching to better understand the people, places and things you care about. To do this, we not only organize information about webpages but other types of information too. Today, Google Search can help you search text from millions of books from major libraries, find travel times from your local public transit agency, or help you navigate data from public sources like the World Bank.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

See, e.g., id.

Like Siri, you can ask Google Assistant general questions. Unlike Siri, you'll likely find that Google can handle a wider range of questions than Siri can. That's because Google Assistant taps into Google's web-wide search results each and every time you search, making it more comprehensive.

See, e.g., <https://searchengineland.com/google-assistant-guide-270312>.

Google's goal

Across town, Google is also pursuing voice recognition through the development of its own system. During a visit to the company's office in New York's Chelsea neighbourhood, speech technology chief Mike Cohen told me that the company has been working in the area for seven years, primarily because of its utility in the mobile space — "the killer app for speech technology", as he describes it.

"Google's mission is to organise the world's information and make it easily accessible," he said. "Turns out [that] a lot of the world's information is spoken."

See, e.g., <https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/>.

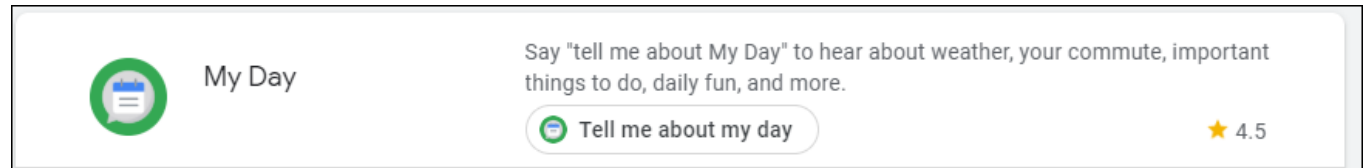
"Google's mission is to organise the world's information and make it easily accessible," he said. "Turns out [that] a lot of the world's information is spoken."

Google, of course, is not merely the company behind its namesake search engine for the web, but also behind the Android mobile operating system, which appears on smartphones, tablet computers and its Google TV product. Like Microsoft, it too had a free 411 service, GOOG-411, that it launched in 2007. (It discontinued the service in late 2010.) And while it hasn't made any formal announcements in the automotive space, its mobile OS has been used in a number of aftermarket infotainment products for cars.

See, e.g., id.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

The information retrieved by the Samsung Accused Products is provided to users in an audio form via said voice-enabled device. For example, Google indicates that one can “**hear** about weather, your commute, important things to do, daily fun, and more.”



See, e.g., https://assistant.google.com/explore?hl=en_us.

How Conversational Actions work

Unlike with traditional mobile and desktop apps, which use computer-centric paradigms, users interact with Actions for the Assistant through natural-sounding, back and forth conversation. Conversational Actions begin when invoked by a user and continue until the user chooses to exit (using predetermined phrases) or your Conversational Action denotes the end of the conversation.

During a conversation, user inputs are transformed from speech to text by the Assistant, and formed into JSON requests for natural language processing. These requests are sent to what's known as your **conversation fulfillment**.

Your conversation fulfillment parses the user's query into structured data, processes that data, and returns a webhook JSON response to the Assistant. The Assistant then processes and presents your response to the user.

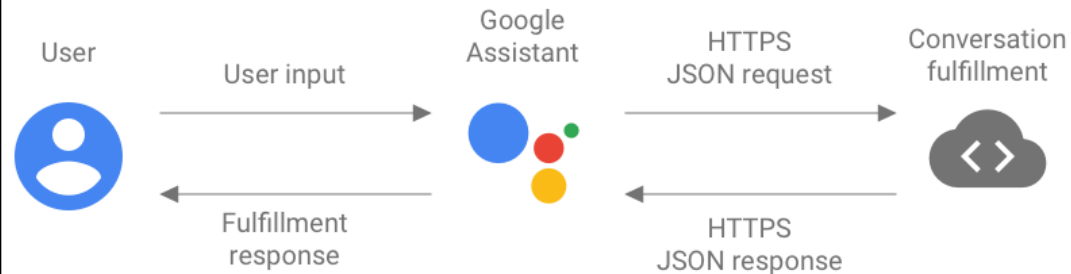


Figure 2. Conversation fulfillment is a JSON in-JSON out system

Building your own natural language processing service can be challenging, so we provide Dialogflow as a way to handle it for you. For developers who cannot use Dialogflow, we also provide the Actions SDK as a backup option with a separate, but related, development path.

See, e.g., <https://developers.google.com/assistant/conversational/overview>.

2[preamble]. "2. A method for using voice commands to browse Internet web sites, comprising the steps of:"

Built on Google infrastructure

Dialogflow is a Google service that runs on Google Cloud Platform, letting you scale to hundreds of millions of users.

Optimized for the Google Assistant

Dialogflow is the most widely used tool to build Actions for more than 400M+ Google Assistant devices.

See, e.g., <https://dialogflow.com/>

Dialogflow is a natural language understanding platform that makes it easy to design and integrate a conversational user interface into your mobile app, web application, device, bot, interactive voice response system, and so on. Using Dialogflow, you can provide new and engaging ways for users to interact with your product.

Dialogflow can analyze multiple types of input from your customers, including text or audio inputs (like from a phone or voice recording). It can also respond to your customers in a couple of ways, either through text or with synthetic speech.

See, e.g., <https://cloud.google.com/dialogflow/docs/>



Powered by Google machine learning

Natural language understanding recognizes a user's intent and extracts prebuilt entities such as time, date, and numbers. You can train your agent to identify custom entity types by providing a small dataset of examples. You can also use [40+ prebuilt agents](#) as templates.

See, e.g., <https://cloud.google.com/dialogflow/>.

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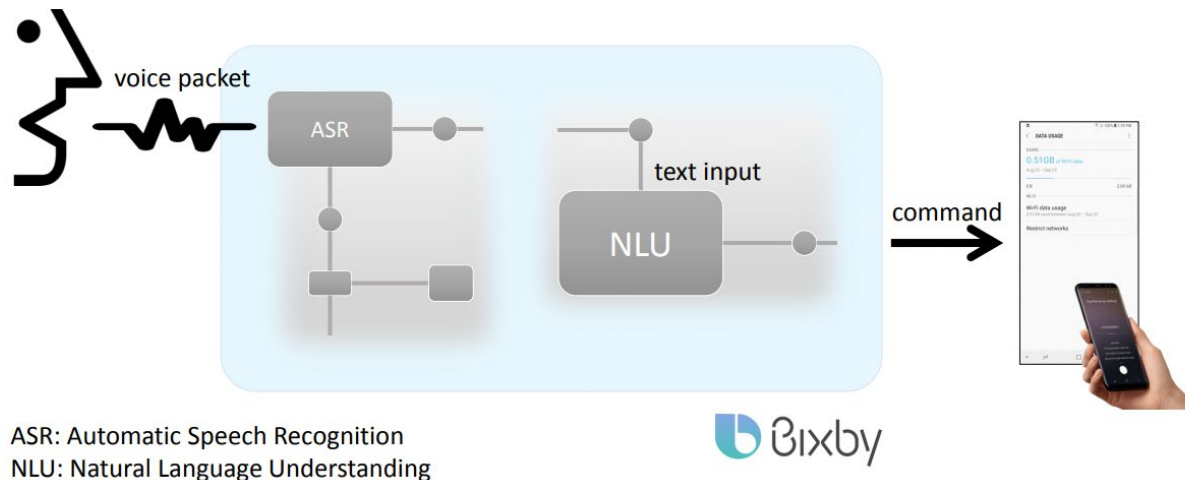
Designed for a voice-first world

You can expand your conversational interface to recognize voice interactions and generate a voice response, all with a single API call. Powered by [Google Cloud Speech-to-Text](#) and [Cloud Text-to-Speech](#), it supports real-time streaming and synchronous modes.

See, e.g., <https://cloud.google.com/dialogflow/>.

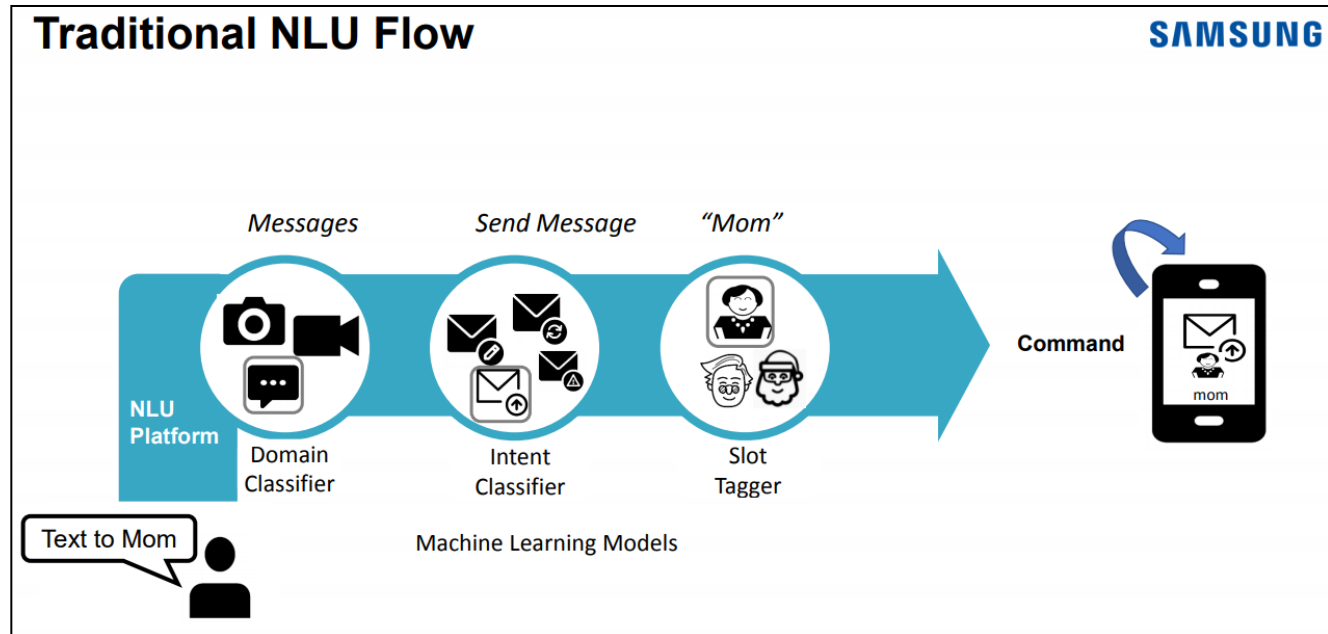
Bixby v1.0: Minimalistic View

SAMSUNG



2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

See, e.g., Samsung Voice Intelligence v5.5 Presentation at 9 (July 25, 2018), available at https://www.slideshare.net/vinutharani1995/samsung-voice-intelligencev55-107403316?from_action=save



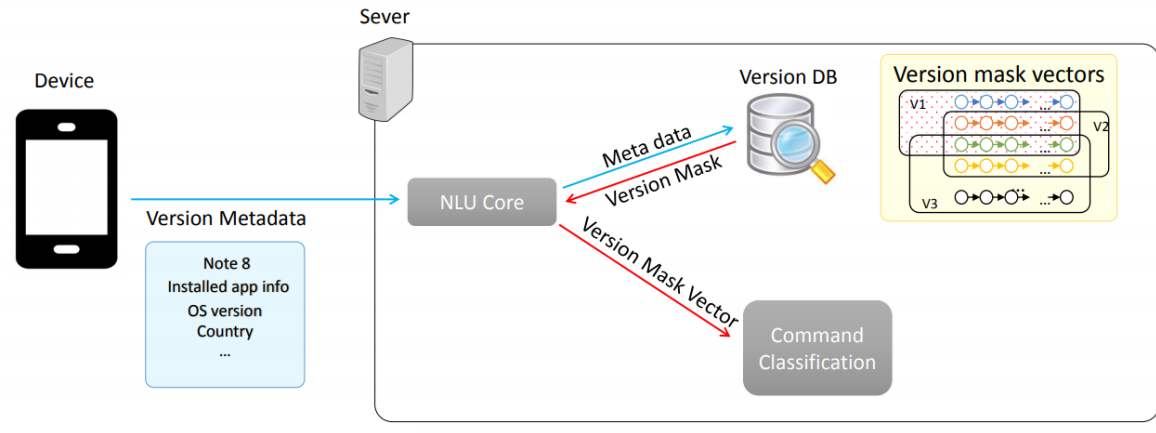
See, e.g., id. at 10.

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



See, e.g., *id.* at 21.

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet the preamble. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in the preamble or remainder of the claim that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet the preamble under the doctrine of equivalents, i.e., Parus

2[preamble]. “2. A method for using voice commands to browse Internet web sites, comprising the steps of:”

	reserves the right to contend that any difference between the Samsung Accused Products and the preamble is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the preamble.
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2[a]. “providing a database storing a list of web sites on magnetic media;”

2[a]. providing a database storing a list of web sites on magnetic media;

Samsung is infringing, and has infringed, element 2[a] by performing a method for using voice commands to browse Internet web sites that includes the step of providing a database storing a list of web sites on magnetic media.

The Samsung Accused Products include/practice providing a database storing a list of web sites on magnetic media.

See claim element 1[b].

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[b]. "assigning a rank number to each of said web sites and storing said rank number in said database;"

<p>2[b]. assigning a rank number to each of said web sites and storing said rank number in said database;</p>	<p>Samsung is infringing, and has infringed, element 2[b] by performing a method for using voice commands to browse Internet web sites that includes the step of assigning a rank number to each of said web sites and storing said rank number in said database.</p> <p>The Samsung Accused Products include/practice assigning a rank number to each of said web sites and storing said rank number in said database.</p> <p><i>See</i> claim element 1[c].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

2[c]. receiving a voice command from a user and converting said command into a digital data message;

Samsung is infringing, and has infringed, element 2[c] by performing a method for using voice commands to browse Internet web sites that includes the step of receiving a voice command from a user and converting said command into a digital data message.

The Samsung Accused Products include/practice receiving a voice command from a user and converting said command into a digital data message.

For example, the Samsung Accused Products include voice recognition that receives a voice command from a user and converts said command into a digital data message.

An All-Neural On-Device Speech Recognizer

Tuesday, March 12, 2019

Posted by Johan Schalkwyk, Google Fellow, Speech Team

In 2012, speech recognition research showed significant accuracy improvements with deep learning, leading to early adoption in products such as Google's Voice Search. It was the beginning of a revolution in the field: each year, new architectures were developed that further increased quality, from deep neural networks (DNNs) to recurrent neural networks (RNNs), long short-term memory networks (LSTMs), convolutional networks (CNNs), and more. During this time, latency remained a prime focus — an automated assistant feels a lot more helpful when it responds quickly to requests.

Today, we're happy to announce the rollout of an end-to-end, all-neural, on-device speech recognizer to power speech input in Gboard. In our recent paper, "Streaming End-to-End Speech Recognition for Mobile Devices", we present a model trained using RNN transducer (RNN-T) technology that is compact enough to reside on a phone. This means no more network latency or spottiness — the new recognizer is always available, even when you are offline. The model works at the character level, so that as you speak, it outputs words character-by-character, just as if someone was typing out what you say in real-time, and exactly as you'd expect from a keyboard dictation system.

See, e.g., <https://ai.googleblog.com/2019/03/an-all-neural-on-device-speech.html>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

How Conversational Actions work ⇄

Unlike with traditional mobile and desktop apps, which use computer-centric paradigms, users interact with Actions for the Assistant through natural-sounding, back and forth conversation. Conversational Actions begin when invoked by a user and continue until the user chooses to exit (using predetermined phrases) or your Conversational Action denotes the end of the conversation.

During a conversation, user inputs are transformed from speech to text by the Assistant, and formed into JSON requests for natural language processing. These requests are sent to what's known as your **conversation fulfillment**.

Your conversation fulfillment parses the user's query into structured data, processes that data, and returns a webhook JSON response to the Assistant. The Assistant then processes and presents your response to the user.

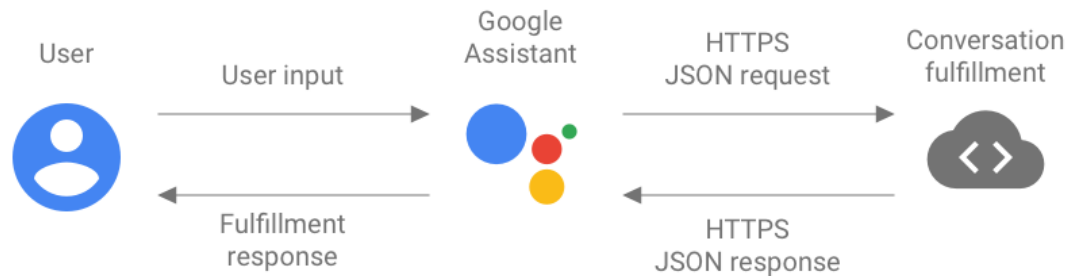
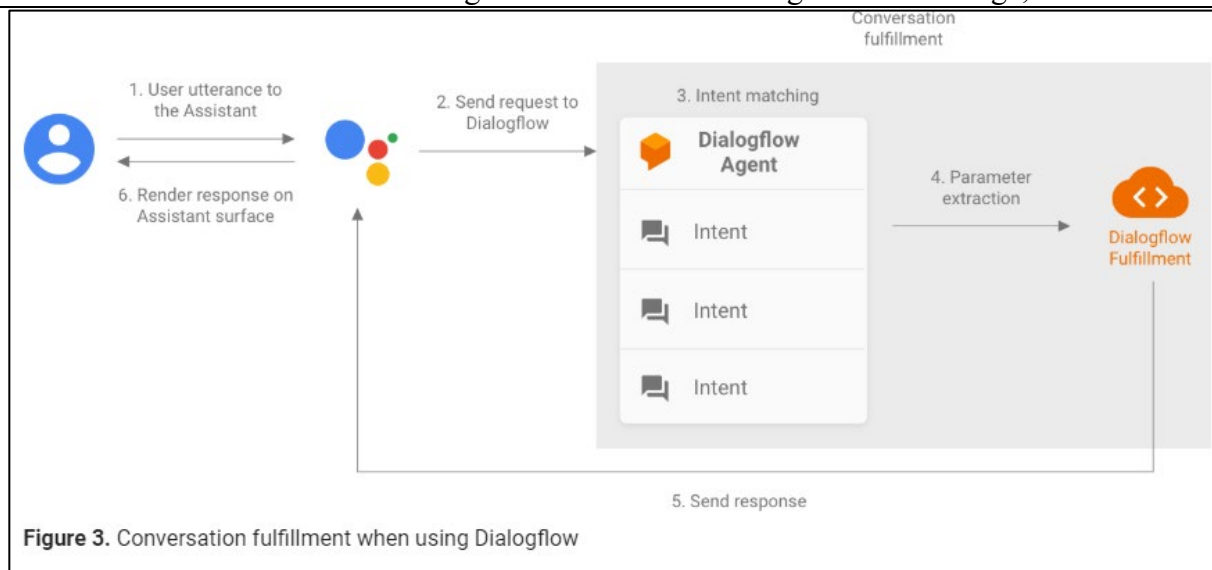


Figure 2. Conversation fulfillment is a JSON in-JSON out system

Building your own natural language processing service can be challenging, so we provide Dialogflow as a way to handle it for you. For developers who cannot use Dialogflow, we also provide the Actions SDK as a backup option with a separate, but related, development path.

See, e.g., <https://developers.google.com/assistant/conversational/overview>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



See, e.g., <https://developers.google.com/assistant/conversational/overview>.

Built on Google infrastructure

Dialogflow is a Google service that runs on Google Cloud Platform, letting you scale to hundreds of millions of users.

Optimized for the Google Assistant

Dialogflow is the most widely used tool to build Actions for more than 400M+ Google Assistant devices.

See, e.g., <https://dialogflow.com/>

Dialogflow is a natural language understanding platform that makes it easy to design and integrate a conversational user interface into your mobile app, web application, device, bot, interactive voice response system, and so on. Using Dialogflow, you can provide new and engaging ways for users to interact with your product.

Dialogflow can analyze multiple types of input from your customers, including text or audio inputs (like from a phone or voice recording). It can also respond to your customers in a couple of ways, either through text or with synthetic speech.

See, e.g., <https://cloud.google.com/dialogflow/docs/>

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



Powered by Google machine learning

Natural language understanding recognizes a user's intent and extracts prebuilt entities such as time, date, and numbers. You can train your agent to identify custom entity types by providing a small dataset of examples. You can also use [40+ prebuilt agents](#) as templates.

See, e.g., <https://cloud.google.com/dialogflow/>.



Designed for a voice-first world

You can expand your conversational interface to recognize voice interactions and generate a voice response, all with a single API call. Powered by [Google Cloud Speech-to-Text](#) and [Cloud Text-to-Speech](#), it supports real-time streaming and synchronous modes.

See, e.g., <https://cloud.google.com/dialogflow/>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

The most significant Assistant news. But by far the most significant Assistant news was the movement of speech processing onto the handset from the network. Google said it had reduced the computing power required to do speech processing from 100GB to "less than half a gigabyte." The practical effect of that is that most of the speech processing can now take place on the smartphone – making the Assistant and its associated functions (opening apps, dictating messages) much much faster. It can also happen without a network connection.

See, e.g., <https://searchengineland.com/google-assistant-moves-from-the-cloud-to-the-phone-now-10x-faster-316556>.

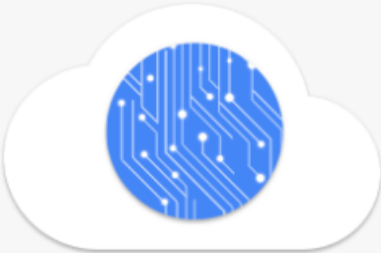
Starting today, third-party developers will have access to the same speech recognition technology that powers Google's products. Available in Google Cloud, the **Cloud Search API** has also been updated with new features and improved performance.

See, e.g., <https://9to5google.com/2017/04/18/google-cloud-speech-api-recognition/>.

Powerful speech recognition

Google Cloud Speech-to-Text enables developers to convert audio to text by applying powerful neural network models in an easy-to-use API. The API recognizes 120 languages and variants to support your global user base. You can enable voice command-and-control, transcribe audio from call centers, and more. It can process real-time streaming or prerecorded audio, using Google's machine learning technology.

See, e.g., <https://cloud.google.com/speech-to-text/>.



Powered by machine learning

Apply the most advanced deep-learning neural network algorithms to audio for speech recognition with unparalleled accuracy. Accuracy improves over time as Google improves the internal speech recognition technology used by Google products.

See, e.g., id.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Features

Automatic speech recognition

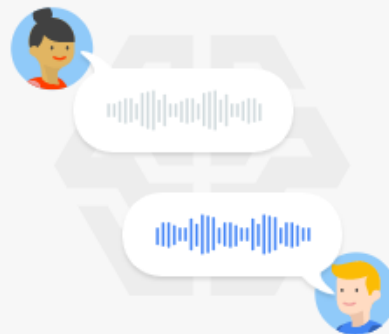
Automatic speech recognition (ASR) powered by deep learning neural networking to power your applications like voice search or speech transcription.

See, e.g., id.

High-fidelity speech synthesis

Google Cloud Text-to-Speech converts text into human-like speech in more than 180 voices across 30+ languages and variants. It applies groundbreaking research in speech synthesis (WaveNet) and Google's powerful neural networks to deliver high-fidelity audio. With this easy-to-use API, you can create lifelike interactions with your users that transform customer service, device interaction, and other applications.

See, e.g., <https://cloud.google.com/text-to-speech/>.



Powered by Google's machine learning

Apply advanced deep learning neural network algorithms to synthesize text into a variety of voices and languages. Our neural networks were built based on Google's speech synthesis expertise.

See, e.g., id.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Text-to-Speech allows developers to create natural-sounding, synthetic human speech as playable audio. You can use the audio data files you create using Text-to-Speech to power your applications or augment media like videos or audio recordings (in compliance with the [Google Cloud Platform Terms of Service](#) including compliance with all applicable law).

Text-to-Speech converts text or Speech Synthesis Markup Language (SSML) input into audio data like MP3 or LINEAR16 (the encoding used in WAV files).

See, e.g., <https://cloud.google.com/text-to-speech/docs/basics>.

Speech synthesis

The process of translating text input into audio data is called *synthesis* and the output of synthesis is called *synthetic speech*. Text-to-Speech takes two types of input: raw text or SSML-formatted data (discussed below). To create a new audio file, you call the [synthesize](#) endpoint of the API.

The speech synthesis process generates raw audio data as a base64-encoded string. You must decode the base64-encoded string into an audio file before an application can play it. Most platforms and operating systems have tools for decoding base64 text into playable media files.

See, e.g., id.

Creating voice audio files

[SEND FEEDBACK](#)

Text-to-Speech allows you to convert words and sentences into base64 encoded audio data of natural human speech. You can then convert the audio data into a playable audio file like an MP3 by decoding the base64 data. The Cloud Text-to-Speech API accepts input as raw text or [Speech Synthesis Markup Language \(SSML\)](#).

See, e.g., <https://cloud.google.com/text-to-speech/docs/create-audio>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Overview

Actions on Google lets you extend the functionality of the Google Assistant with **Actions**. Actions let users get things done through a conversational interface that can range from a quick command to turn on some lights or a longer conversation, such as playing a trivia game.

Dialogflow is a conversational platform that lets you design and build Actions by wrapping the functionality of the [Actions SDK](#) and providing additional features such as an easy-to-use IDE, natural language understanding (NLU), machine learning, and more.

To extend the Google Assistant, you build an Action with the following steps.

See, e.g., <https://developers.google.com/assistant/actions/dialogflow>.

Help users interact with technology

Traditional computer interfaces require structured and predictable input to function properly, which makes the use of these interfaces unnatural and sometimes difficult. If end-users can't easily understand this structured input, they have a hard time figuring out what to do. Ideally, your interfaces can infer what your end-users want, based on the natural language they are using.

For example, consider a simple user request like "What's the weather forecast today?". Other end-users might also ask:

- "What's the weather like right now?"
- "What's the temperature going to be in San Francisco tomorrow?"
- "What will the weather be on the 21st?"

Even with these simple questions, you can see that conversational experiences are hard to implement. Interpreting and processing natural language requires a very robust language parser. Dialogflow handles this for you, so you can provide a high quality conversational end-user experience.

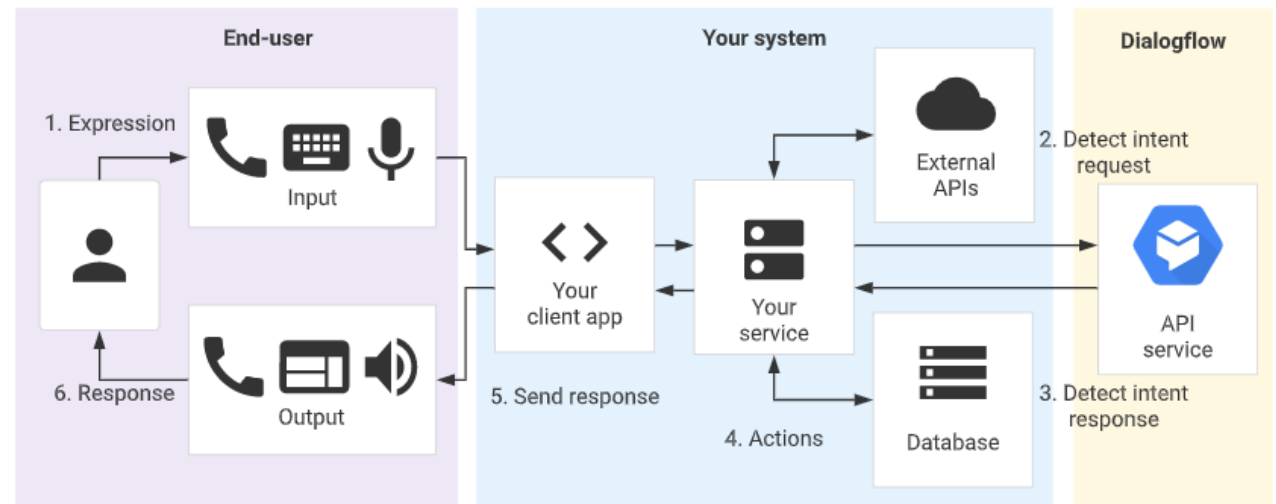
See, e.g., id.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

API interactions

[SEND FEEDBACK](#)

If you are not using one of the [integration](#) options, you must write code that directly interacts with the end-user. You must also directly interact with Dialogflow's API for each conversational turn to send end-user expressions and receive intent matches. The following diagram shows the processing flow when interacting with the API.

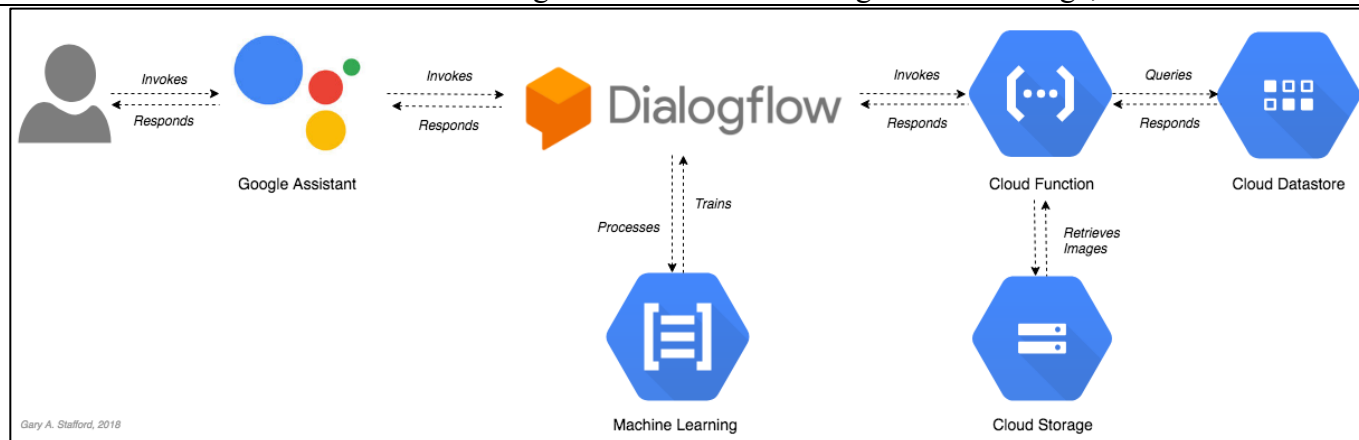


See, e.g., <https://cloud.google.com/dialogflow/docs/api-overview>.

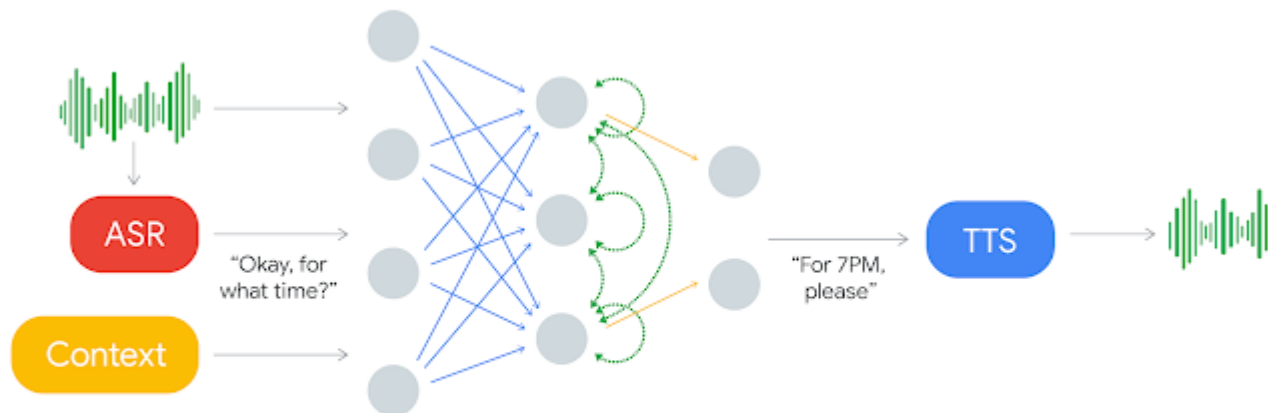
1. The end-user types or speaks an expression.
2. Your service sends this end-user expression to Dialogflow in a detect intent request message.
3. Dialogflow sends a detect intent response message to your service. This message contains information about the matched intent, the action, the parameters, and the response defined for the intent.
4. Your service performs actions as needed, like database queries or external API calls.
5. Your service sends a response to the end-user.
6. The end-user sees or hears the response.

See, e.g., *id.*

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



See, e.g., <https://programmaticponderings.com/2018/08/11/building-serverless-actions-for-google-assistant-with-google-cloud-functions-cloud-datastore-cloud-storage/>.

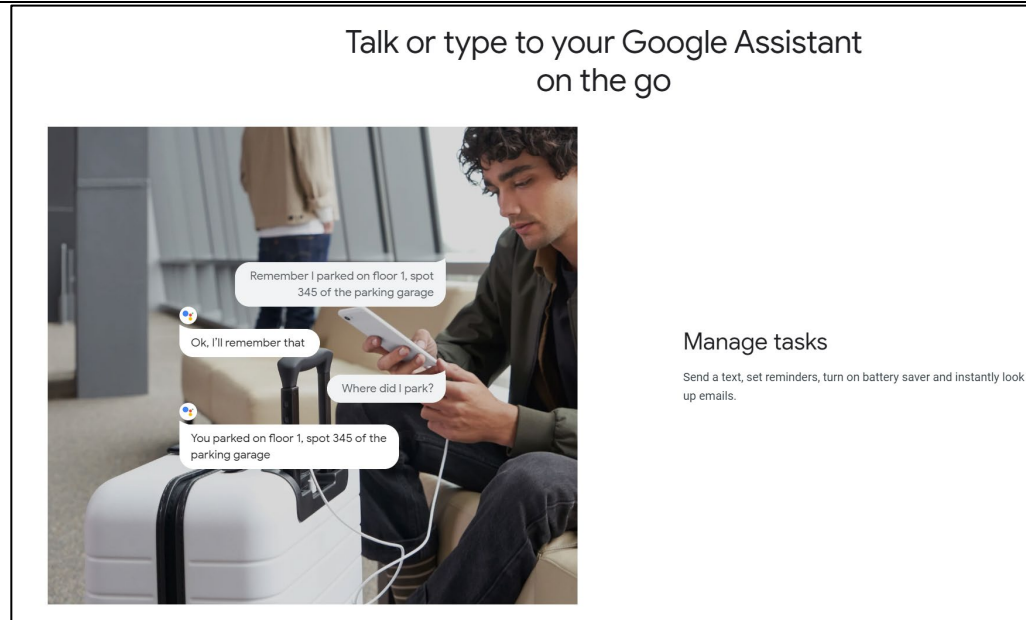


Incoming sound is processed through an ASR system. This produces text that is analyzed with context data and other inputs to produce a response text that is read aloud through the TTS system.

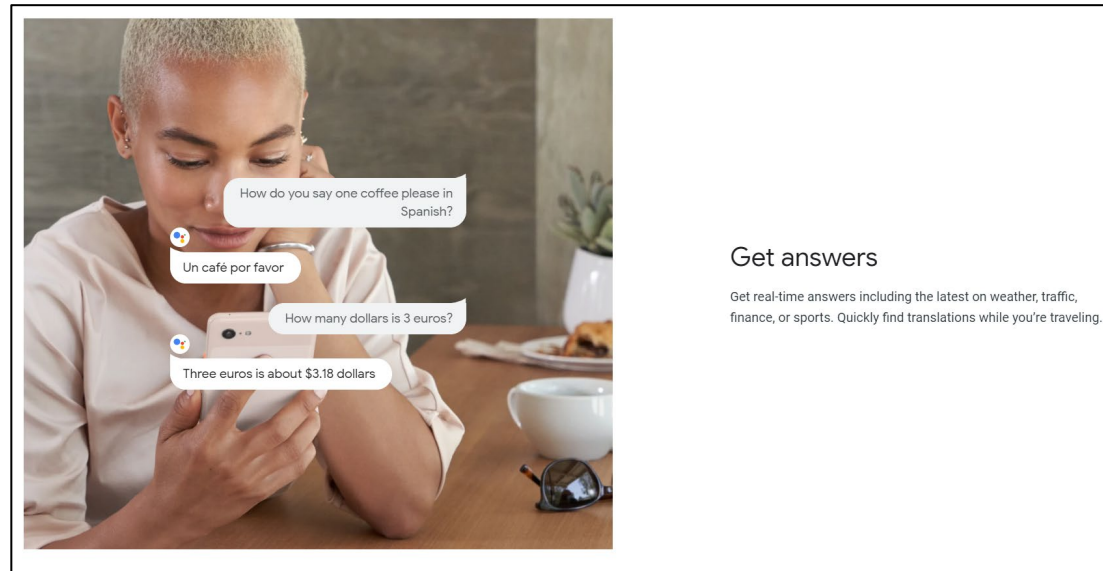
See, e.g., <https://ai.googleblog.com/2018/05/duplex-ai-system-for-natural-conversation.html>.

Commands are received from users.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



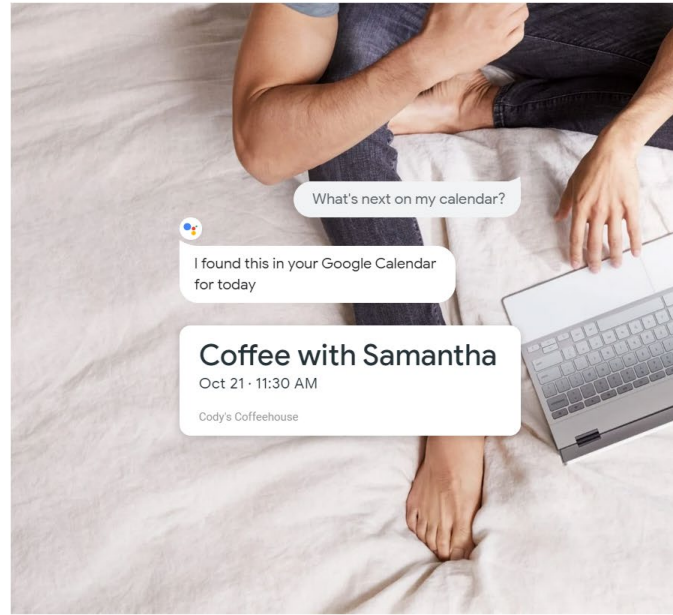
See, e.g., <https://assistant.google.com/platforms/phones/>.



See, e.g., *id.*

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Say "Hey Google" or press the
Assistant Key

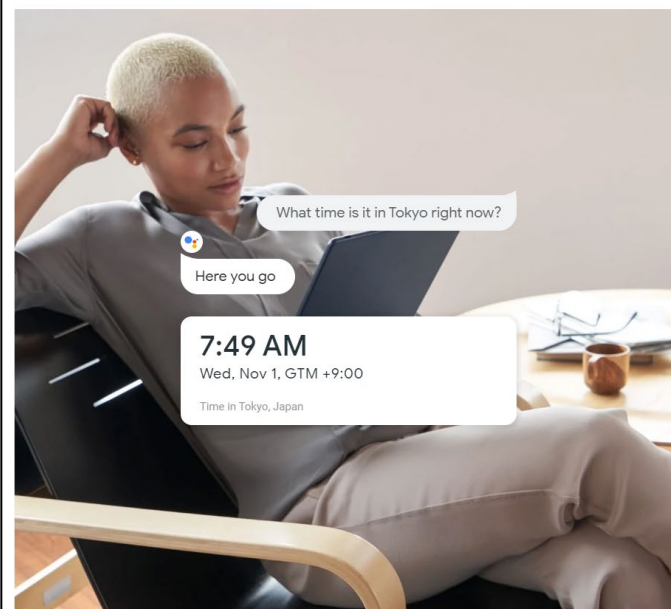


Manage tasks

Send an email, set reminders, manage your calendar, all without switching screens.

See, e.g., <https://assistant.google.com/platforms/laptops/>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



Get answers

Ask questions and get answers to things you want to know. Just type, talk or circle.

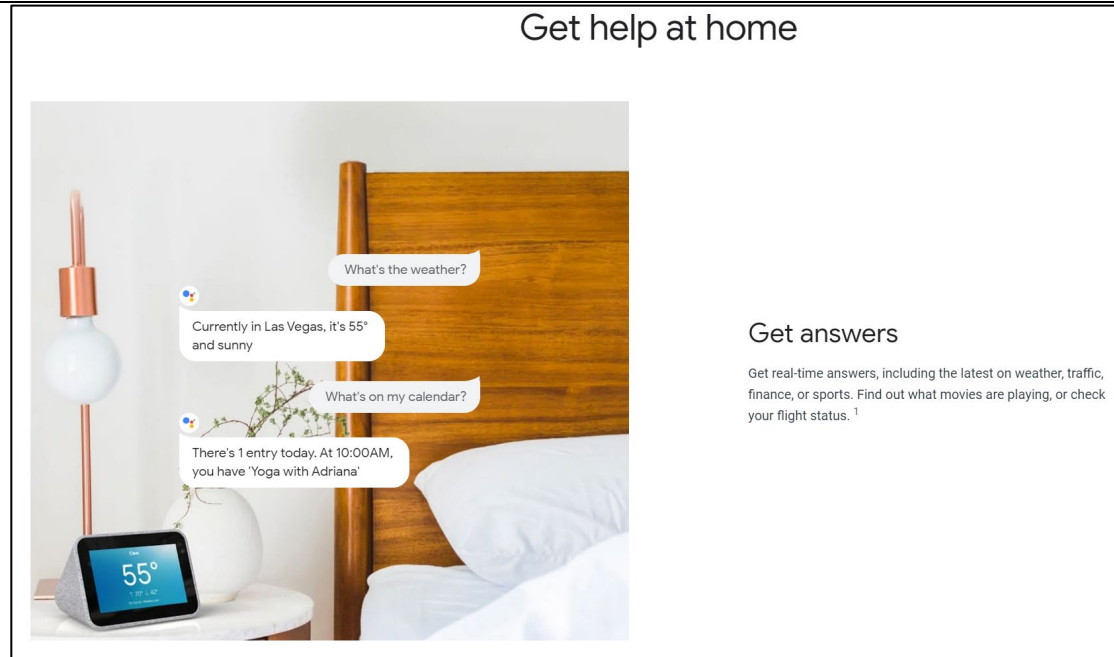
See, e.g., id.

The Google Assistant now in even more devices

With your Google Assistant in even more devices, it's easy to get things done. Just start with "Hey Google" to quickly get answers, manage daily tasks, and, of course, control your device or the rest of your smart home. Your Assistant can help free up your hands and time, so you can focus on the things that matter most.¹

See, e.g., <https://assistant.google.com/platforms/devices/>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



See, e.g., id.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



Local Information

"What's the weather right now?"

"How's the traffic to work?"

"Give me directions to the airport"

"Find the closest ATM"

"What time does the post office close?"

"Call the nearest pharmacy"

"Will it rain tomorrow?"

"Find movies playing nearby"

See, e.g., <https://assistant.google.com/learn/>.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



Quick answers

"How many ounces are in a pound?"

"What's 20% of 47?"

"How do you say hello in Chinese?"

"How much protein is in an egg?"

"What time is it in London?"

"What's on my schedule today?"

"When is sunset?"

"What is the S&P 500 trading at?"

See, e.g., id.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"



Music and News

"Play workout music"

"Play Today's Top Hits on Spotify"

"Tell me the latest news"

"Play NPR news summary"

"Listen to ESPN SportsCenter"

"Play rain sounds"

"Listen to Hidden Brain"

"Set volume to 3"

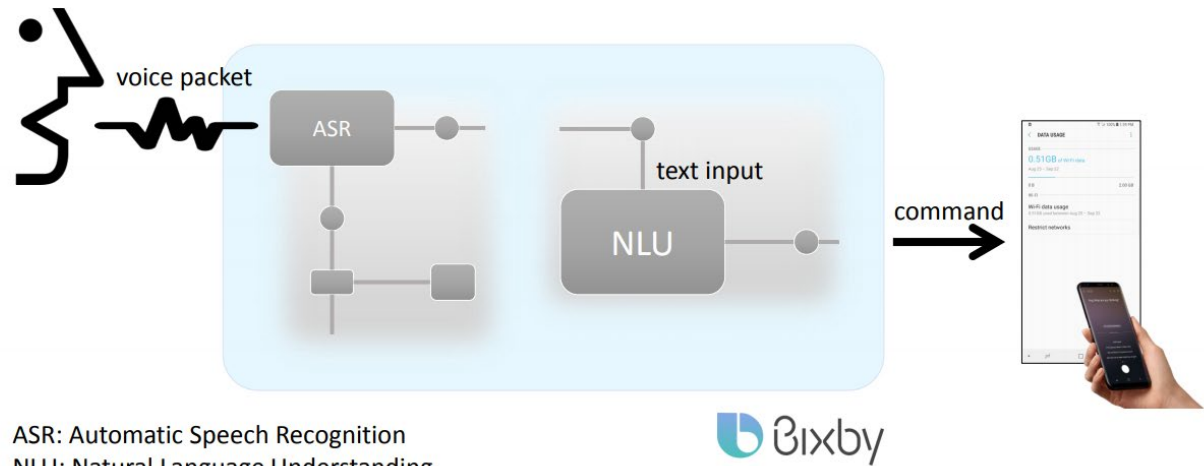
See, e.g., id.

On information and belief, the Samsung Accused Products are also operatively connected to the Samsung controlled servers utilized by the Samsung Accused Products to implement the functionality described herein. For example, on information and belief, Bixby also is/utilizes a cloud-based service to receive voice commands from users.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Bixby v1.0: Minimalistic View

SAMSUNG

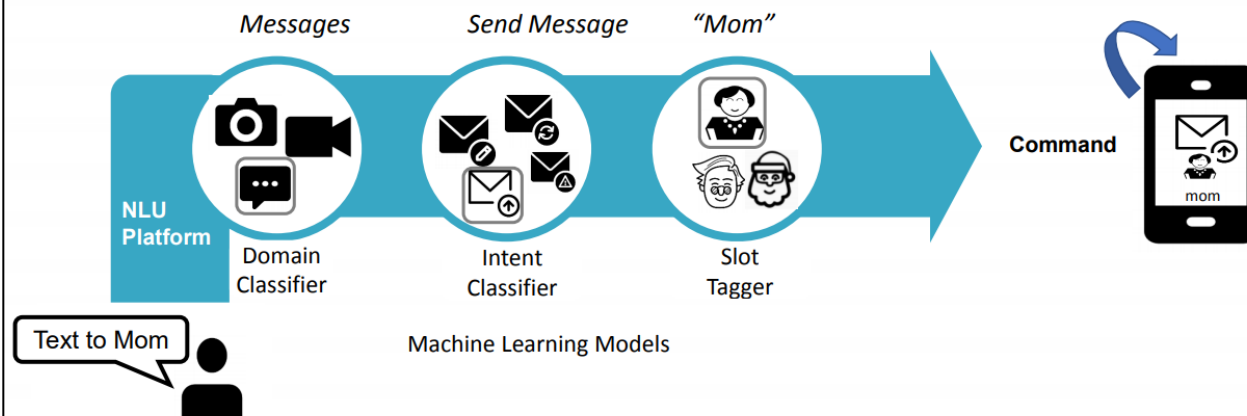


See, e.g., Samsung Voice Intelligence v5.5 Presentation at 9 (July 25, 2018), available at https://www.slideshare.net/vinutharani1995/samsung-voice-intelligencev55-107403316?from_action=save

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Traditional NLU Flow

SAMSUNG

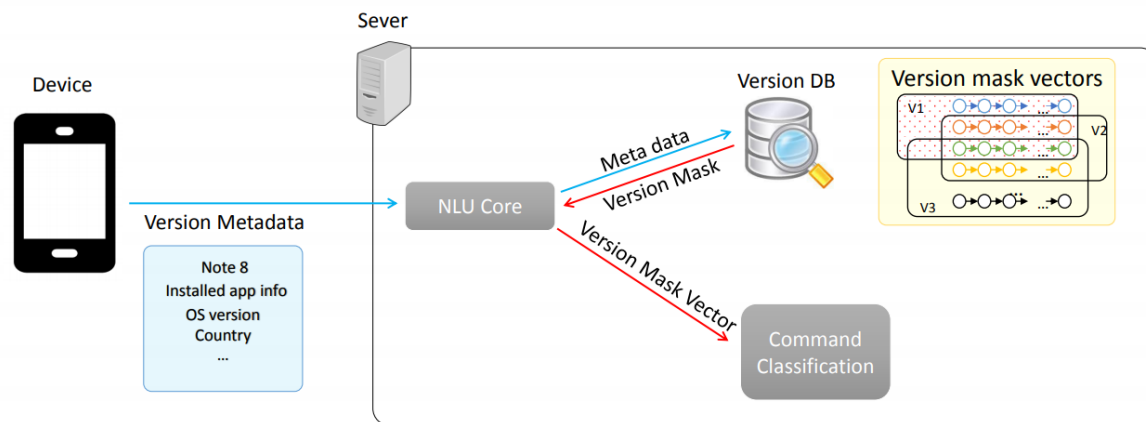


See, e.g., *id.* at 10.

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



See, e.g., *id.* at 21.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

What to Know About Bixby

Doesn't have a gender. Bixby has neither gender nor sex and does not identify with any sexual orientation.

Does not possess a body. Bixby doesn't have a physical presence and is not human.

Lives in the cloud. Bixby does not have a physical location.

But knows what's going on in the world. Bixby can make pop culture and news references.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/design-guides/writing>

Research Phase

While you're creating your own capsule, narrow down what you want the user to be able to accomplish through Bixby while using their device and the cloud platform. Essentially, you're asking "What ability do I want to teach Bixby?"

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/managing-caps.planning-external>

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

For example, `spaceResorts`, local JavaScript files include all the necessary **action implementations** for each of the actions modeled, even sorting the various `*.js` files the same way as the action models. **JavaScript in this capsule is executed in the cloud through Bixby servers**, though JavaScript can also be executed on your server if your capsule uses remote **endpoints**. Additionally, the objects being returned from the calls are also in local JSON files, under the `code/lib` directory.

See, e.g., <https://bixbydevelopers.com/dev/docs/sample-capsules/walkthroughs/space-resorts>

Implementing JavaScript Actions

Functions are the implementations of actions. They actually execute the steps of a plan, by making computations or contacting external APIs. You first define inputs and outputs within an **action** first. You then implement functions using JavaScript to provide the necessary logic, operations, and to specify the same inputs and outputs as the action. **Local JavaScript is executed in the cloud on Bixby servers**, while remote JavaScript is executed on your own server.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/actions.js-actions>

Q. Will using Bixby eat up my mobile data, and is it possible to use it overseas?

Bixby only utilizes your mobile data when listening to a command, not before or after. As a result, the length of the command ultimately determines the amount of mobile data used.

See, e.g., <https://news.samsung.com/global/bixby-101-get-to-know-the-ins-and-outs-of-samsungs-intelligent-interface>

Do I need Wi-Fi or mobile data to use Bixby?

Yes, to use Bixby, you must be connected to a mobile data or Wi-Fi network.

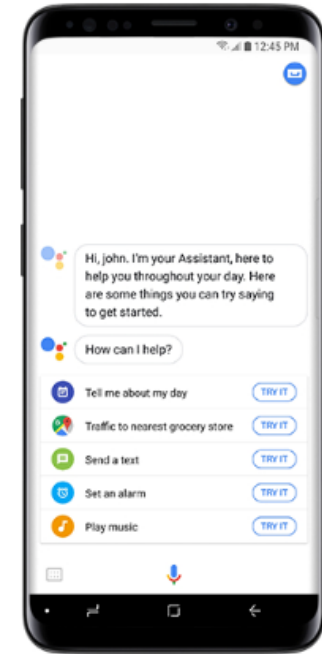
See, e.g., <https://www.samsung.com/ca/support/mobile-devices/questions-about-bixby/>

Further, the Samsung Accused Products, including resident voice-enabled device, is configured to receive speech commands from users.

2[c]. "receiving a voice command from a user and converting said command into a digital data message;"

Use Google Assistant

Now that the ice has been broken, Google Assistant will help you whenever you want. To open Google Assistant, touch and hold **Home**. Touch the **Speak** icon to interact with Google Assistant, and then ask, "What can you do?" Swipe to the left to see a list of things Google Assistant can help with, like adjusting your Smart Home features.



See, e.g., <https://www.samsung.com/us/support/answer/ANS00077672/>.

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[d]. “providing a CPU-based web browsing system for receiving said digital data message and accessing one of said web sites having the highest said rank number, said web browsing system including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content file;”

<p>2[d]. providing a CPU-based web browsing system for receiving said digital data message and accessing one of said web sites having the highest said rank number, said web browsing system including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content file;</p>	<p>Samsung is infringing, and has infringed, element 2[d] by performing a method for using voice commands to browse Internet web sites that includes the step of providing a CPU-based web browsing system as described in element 2[d].</p> <p>The Samsung Accused Products include/practice providing a CPU-based web browsing system for receiving said digital data message and accessing one of said web sites having the highest said rank number, said web browsing system including at least a content extraction agent, a content fetcher, a polling and ranking agent, and a content file.</p> <p><i>See</i> claim element 1[d].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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2[e]. "receiving at said web browsing system response data from said web site with the highest rank number;"

2[e]. receiving at said web browsing system response data from said web site with the highest rank number;

Samsung is infringing, and has infringed, element 2[e] by performing a method for using voice commands to browse Internet web sites that includes the step of receiving at said web browsing system response data from said web site with the highest rank number.

The Samsung Accused Products include/practice receiving at said web browsing system response data from said web site with the highest rank number.

See claim element 1[d].

For example, the Samsung Accused Products retrieve information from websites that have been indexed. Google's web browsing server has an agent that extracts information that matches a request (relevant data that is identified). It has an agent that fetches the relevant data that is identified. It has a polling and ranking agent that include features that ensure accessing indexed websites according to ranking established by algorithms. Finally, on information and belief, the Samsung Accused Products receive digital data messages provided by the web browsing system (converted from speech commands) that access a website with highest rank number to retrieve the information and deliver the search results.

Serving (and ranking)

When a user types a query, Google tries to find the most relevant answer from its index based on many factors. Google tries to determine the highest quality answers, and factor in other considerations that will provide the best user experience and most appropriate answer, by considering things such as the user's location, language, and device (desktop or phone). For example, searching for "bicycle repair shops" would show different answers to a user in Paris than it would to a user in Hong Kong. Google doesn't accept payment to rank pages higher, and ranking is done programmatically.

To improve your serving and ranking:

- Make your page fast to load, and mobile-friendly.
- Put useful content on your page and keep it up to date.
- Follow the [Google Webmaster Guidelines](#), which help ensure a good user experience.
- Read more tips and best practices in our [SEO starter guide](#).
- You can find [more information here](#) [↗](#), including [the guidelines that we provide to our quality raters to ensure that we're providing good results](#) [↗](#).

2[e]. "receiving at said web browsing system response data from said web site with the highest rank number;"

See, e.g., <https://developers.google.com/search/docs/beginner/how-search-works>.

How Google Assistant ranks results from Google Search

In some cases, the best way Assistant can help with your request is to provide results from Google Search. For example, Assistant may show you Search results on phones or other devices with a screen if it thinks you want to see a wider set of results, or if no other response ranks higher.

You can learn more about how Google's Search ranking algorithms work and the different types of useful responses available from Google Search at [How Search Works](#).

Generally, when Assistant provides results from Google Search, those results are similar to what you would find if you searched for them in Google Search. Assistant applies limited algorithmic adjustments with the aim of providing results that are appropriate and helpful for Assistant users:

- Assistant may filter out inappropriate and explicit content on shared devices, such as smart displays.
- Assistant may consider the context of your request, such as your previous queries, as well as the capabilities of your device, and common use patterns on that type of device. For example, more video results may be shown on TVs than phones.

See, e.g., <https://developers.google.com/assistant/howassistantworks/responses>.

How Search algorithms work

With the amount of information available on the web, finding what you need would be nearly impossible without some help sorting through it. Google ranking systems are designed to do just that: sort through hundreds of billions of webpages in our Search index to find the most relevant, useful results in a fraction of a second, and present them in a way that helps you find what you're looking for.

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

2[e]. "receiving at said web browsing system response data from said web site with the highest rank number;"

These ranking systems are made up of not one, but a whole series of algorithms. To give you the most useful information, Search algorithms look at many factors, including the words of your query, relevance and usability of pages, expertise of sources, and your location and settings. The weight applied to each factor varies depending on the nature of your query—for example, the freshness of the content plays a bigger role in answering queries about current news topics than it does about dictionary definitions.

To help ensure Search algorithms meet high standards of relevance and quality, we have a [rigorous process](#) that involves both live tests and thousands of trained external Search Quality Raters from around the world. These Quality Raters follow strict [guidelines](#) that define our goals for Search algorithms and are publicly available for anyone to see.

See, e.g., <https://www.google.com/search/howsearchworks/algorithms/>.

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[f]. “converting said response data into an audio message that is transmitted to said user;”

<p>2[f]. converting said response data into an audio message that is transmitted to said user;</p>	<p>Samsung is infringing, and has infringed, element 2[f] by performing a method for using voice commands to browse Internet web sites that includes the step of converting said response data into an audio message that is transmitted to said user.</p> <p>The Samsung Accused Products include/practice converting said response data into an audio message that is transmitted to said user.</p> <p><i>See</i> claim element 1[e].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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2[g]. “periodically polling each of said web sites listed in said database, each of said web sites thereby becoming a polled web site;”

2[g]. periodically polling each of said web sites listed in said database, each of said web sites thereby becoming a polled web site;

Samsung is infringing, and has infringed, element 2[g] by performing a method for using voice commands to browse Internet web sites that includes the step of periodically polling each of said web sites listed in said database, each of said web sites thereby becoming a polled web site.

The Samsung Accused Products include/practice periodically polling each of said web sites listed in said database, each of said web sites thereby becoming a polled web site.

See claim element 1[f].

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[h]. “decreasing said rank number of said polled web site if no response is received from said polled web site;”

2[h]. decreasing said rank number of said polled web site if no response is received from said polled web site;

Samsung is infringing, and has infringed, element 2[h] by performing a method for using voice commands to browse Internet web sites that includes the step of decreasing said rank number of said polled web site if no response is received from said polled web site.

The Samsung Accused Products includes/practices decreasing said rank number of said polled web site if no response is received from said polled web site.

See claim element 1[f].

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[i]. “decreasing said rank number of said polled web site if an unexpected response is received from said polled web site; and”

2[i]. decreasing said rank number of said polled web site if an unexpected response is received from said polled web site; and

Samsung is infringing, and has infringed, element 2[i] by performing a method for using voice commands to browse Internet web sites that includes the step of decreasing said rank number of said polled web site if an unexpected response is received from said polled web site.

The Samsung Accused Products includes decreasing said rank number of said polled web site if an unexpected response is received from said polled web site.

See claim element 1[f].

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

2[j]. “decreasing said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.”

<p>2[j]. decreasing said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.</p>	<p>Samsung is infringing, and has infringed, element 2[j] by performing a method for using voice commands to browse Internet web sites that includes the step of decreasing said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.</p> <p>The Samsung Accused Products includes decreasing said rank number of said polled web site if a response time of said polled web site is longer than a second response time of a second polled web site.</p> <p><i>See</i> claim element 1[f].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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3[preamble]. “3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:”

<p>3[preamble]. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:</p>	<p>To the extent that the preamble is a limitation, Samsung is infringing, and has infringed, by making, using selling, offering to sell, or importing a system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs comprising the elements of claim 3 listed thereafter.</p> <p>The Samsung Accused Products include a system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs.</p> <p>For example, the following exemplary documents provide support to demonstrate the Google Assistant Product practices this claim:</p> <p>Andrew Nusca, <i>How voice recognition will change the world</i> (Nov. 4, 2011), available at https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/.</p> <p>Gene Munster, Will Thompson, <i>Annual Digital Assistant IQ Test – Siri, Google Assistant, Alexa, Cortana</i> (Jul. 25, 2018), available at https://loupventures.com/annual-digital-assistant-iq-test-siri-google-assistant-alexa-cortana/.</p> <p>Extending the assistant (Jan. 29, 2019), available at https://developers.google.com/actions/extending-the-assistant.</p> <p>Voice Browsing (Jan. 29, 2019), available at https://www.w3.org/standards/webofdevices/voice.</p> <p>How Search organizes information (Jan. 29, 2019), available at https://www.google.com/search/howsearchworks/crawling-indexing/.</p> <p>Winston Chen, Speaking to the Web with the Web Speech API (Aug. 17, 2017), available at https://medium.com/samsung-internet-dev/speaking-to-the-web-with-the-web-speech-api-980d12d34244.</p> <p>Dieter Bohn, Here’s what we know Samsung’s Bixby assistant can do on the Galaxy S8 (Mar. 29, 2017), available at https://www.theverge.com/2017/3/29/15097744/samsung-bixby-galaxy-s8-assistant-vs-siri-alexa-android.</p> <p>On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby “essentially works the same way” as the Google Assistant.</p> <p>How Bixby works</p>
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3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

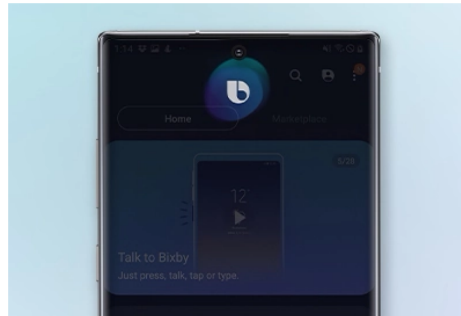
Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

3[preamble]. “3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:”

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

Bixby is an [artificial intelligence](#) (AI) system developed by Samsung Electronics to make [device](#) interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and [deep learning](#) to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a [wide](#) variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and [Google Assistant](#). It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

available at <https://www.businessinsider.com/bixby>.

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

See claim 1[preamble].

Further, the Samsung Accused Products allow one to control smart home devices with Google Assistant.

3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

Control smart home devices with Google Assistant

You can control smart home devices including lights, switches, outlets, and thermostats using your Google Assistant.

Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

- "Hey Google, set the heat to 70."
- "Hey Google, turn on lights in the kitchen."

See, e.g., <https://support.google.com/assistant/answer/7314909?hl=en>.

With a little help from Google.

Ask Google to control smart devices in your home. No
matter where you are, get things done – whenever
you want.

See, e.g., <https://assistant.google.com/smart-home/>.

3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

Discover smart home devices.

Find smart home devices from thousands of brands. With Google, devices can work together to save time, lower energy bills, and help keep you safer.

Lighting and Plugs

Climate and Energy

Security and Awareness

Entertainment

Appliances and More

See, e.g., <https://assistant.google.com/smart-home/>.

Explore smart lighting and plugs.

Look for the Works with Hey Google badge in stores and online.

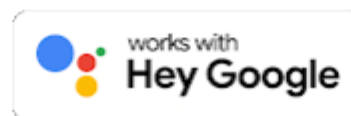


See, e.g., <https://assistant.google.com/smart-home/devices/lighting-plugs/>.

3[preamble]. “3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:”

Explore smart climate and energy devices.

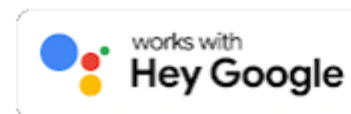
Look for the Works with Hey Google badge in stores and online.



See, e.g., <https://assistant.google.com/smart-home/devices/climate-energy/>.

Explore smart entertainment devices.

Look for the Works with Hey Google badge in stores and online.

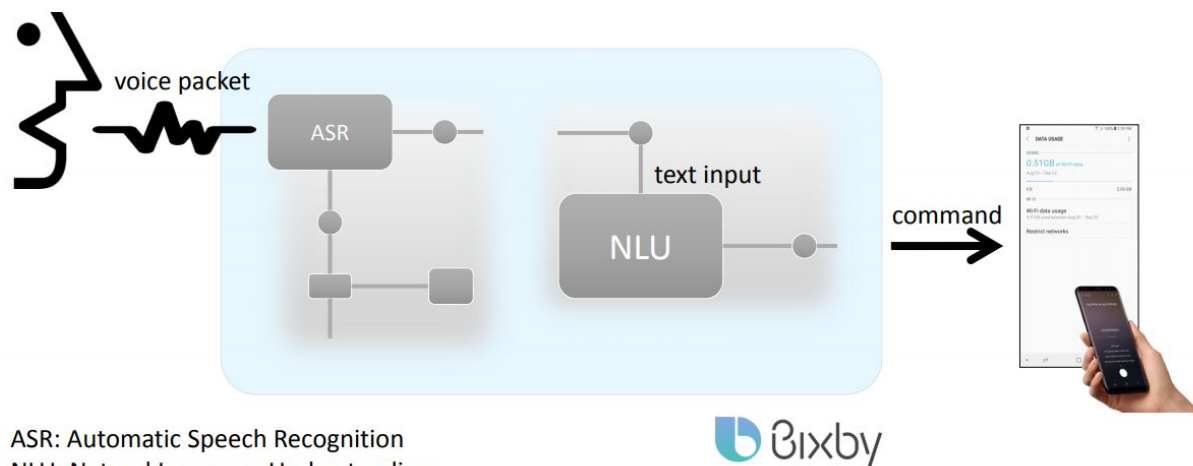


See, e.g., <https://assistant.google.com/smart-home/devices/entertainment/>.

3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

Bixby v1.0: Minimalistic View

SAMSUNG



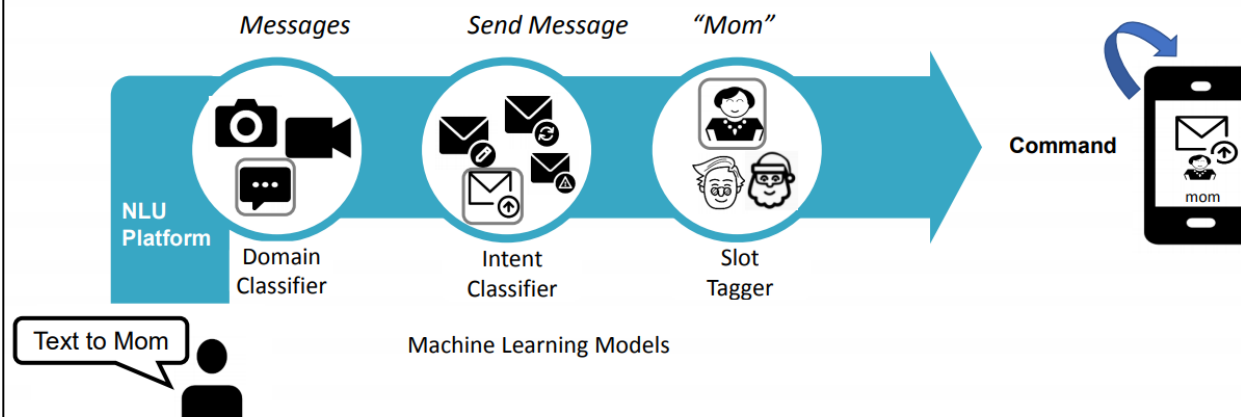
ASR: Automatic Speech Recognition
NLU: Natural Language Understanding

See, e.g., Samsung Voice Intelligence v5.5 Presentation at 9 (July 25, 2018), available at https://www.slideshare.net/vinutharani1995/samsung-voice-intelligencev55-107403316?from_action=save

3[preamble]. “3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:”

Traditional NLU Flow

SAMSUNG

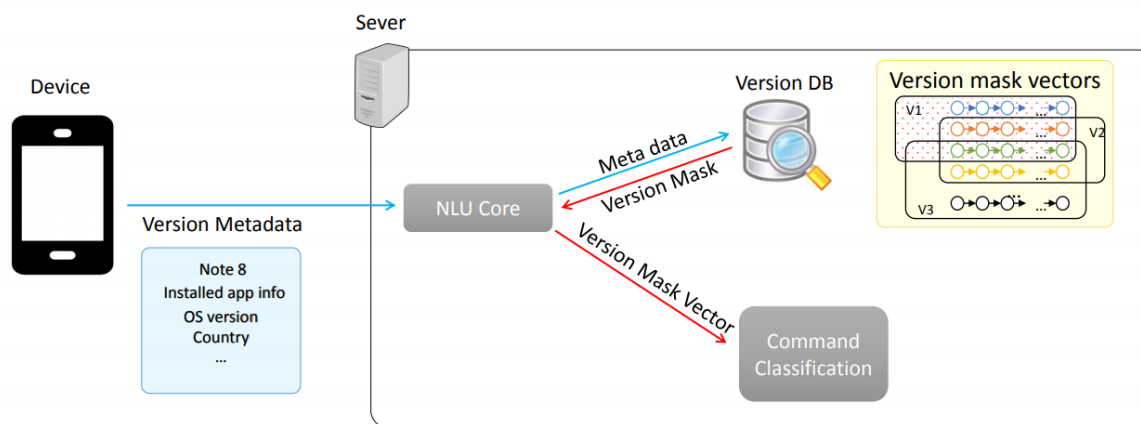


See, e.g., *id.* at 10.

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



See, e.g., *id.* at 21.

3[preamble]. "3. A system for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, and VCRs, comprising:"

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet the preamble. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in the preamble or remainder of the claim that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet the preamble under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the preamble is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the preamble.

3[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;"

3[a]. a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;

Samsung is infringing, and has infringed, element 3[a] by making, using selling, offering to sell, or importing a system for remotely controlling household devices having a CPU-based media server as described in element 3[a].

The Samsung Accused Products include a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user.

See claim element 1[a].

Additionally, the CPU-based media server allows control of home devices.

Control smart home devices with Google Assistant

You can control smart home devices including lights, switches, outlets, and thermostats using your Google Assistant.

Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

- "Hey Google, set the heat to 70."
- "Hey Google, turn on lights in the kitchen."

See, e.g., <https://support.google.com/assistant/answer/7314909?hl=en>.

3[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;"

With a little help from Google.

Ask Google to control smart devices in your home. No
matter where you are, get things done – whenever
you want.

See, e.g., <https://assistant.google.com/smart-home/>.

For example, Google advertises many smart-home devices that are compatible with the Samsung Accused Products. One such device is the LIFX Color light bulb.

3[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;”



LIFX Color

Shop now >

See, e.g., <https://assistant.google.com/smart-home/devices/lighting-plugs/>.

3[a]. "a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;"

Product Specifications

Brightness: 1100 Lumens (75W equivalent)

Wattage Use: 11.5 Watts at full brightness

Wattage on Standby: <0.5W

Voltage Range: AC 100-240V 50/60 Hz

Color Temperature: 1500K - 9000K

Beam Angle: 210°

Dimming: Software dimming 1% - 100%

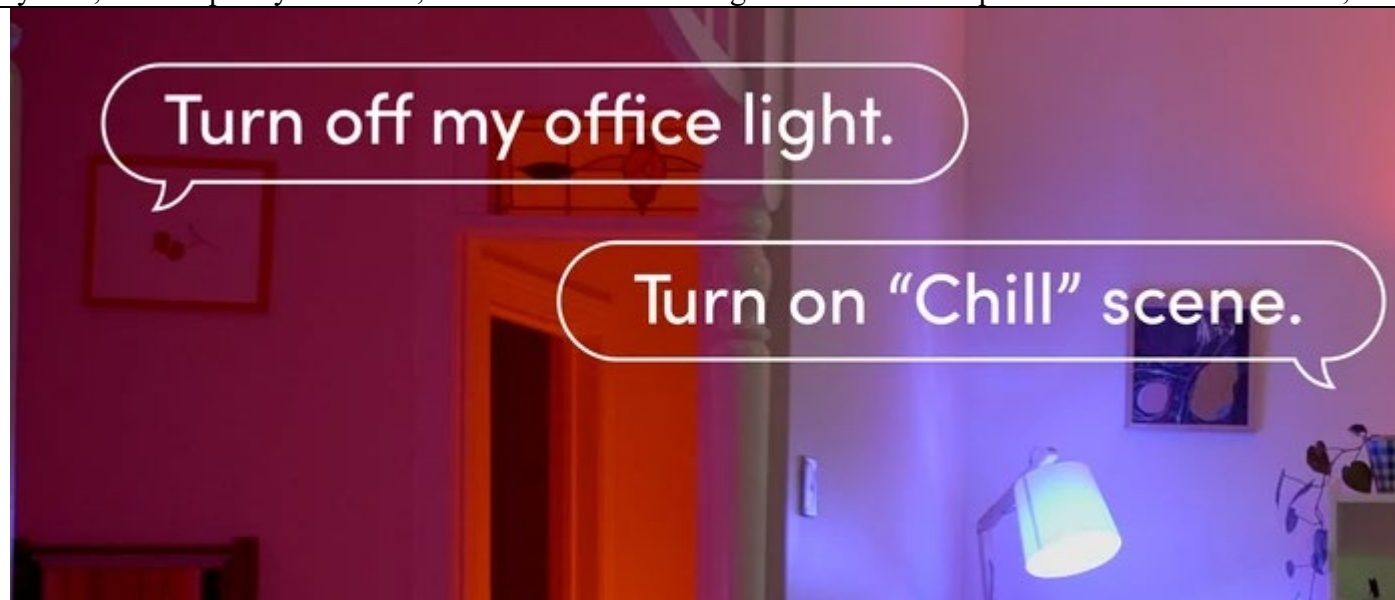
Wi-Fi Router Requirement: 802.11b,g,n standards compliant

Security: WPA, WPA2

Product Dimensions: 2.48" x 2.48" x 4.53"

See, e.g., <https://www.lifx.com/products/lifx-color-a19?variant=39834390397109>.

3[a]. “a CPU-based media server, said media server including at least a speech recognition engine, a speech synthesis engine, an interactive voice response application, a call processing system, and telephony hardware, said media server configured to receive a speech command from a user;”



See, e.g., <https://www.lifx.com/products/lifx-color-a19?variant=39834390397109>.

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

3[b]. “at least one household device connected to a network;”

3[b]. at least one household device connected to a network;

Samsung is infringing, and has infringed, element 3[b] by making, using selling, offering to sell, or importing a system for remotely controlling household devices having at least one household device connected to a network.

The Samsung Accused Products include at least one household device connected to a network.

For example, the Samsung Accused Products allow one to control smart home devices with Google Assistant.

Control smart home devices with Google Assistant

You can control smart home devices including lights, switches, outlets, and thermostats using your Google Assistant.

Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

- "Hey Google, set the heat to 70."
- "Hey Google, turn on lights in the kitchen."

See, e.g., <https://support.google.com/assistant/answer/7314909?hl=en>.

3[b]. “at least one household device connected to a network;”

With a little help from Google.

Ask Google to control smart devices in your home. No
matter where you are, get things done – whenever
you want.

See, e.g., <https://assistant.google.com/smart-home/>.

For example, Google advertises many smart-home devices that are compatible with the Samsung Accused Products. One such device is the LIFX Color light bulb.



LIFX Color

[Shop now >](#)

3[b]. "at least one household device connected to a network;"

See, e.g., <https://assistant.google.com/smart-home/devices/lighting-plugs/>.

Product Specifications

Brightness: 1100 Lumens (75W equivalent)

Wattage Use: 11.5 Watts at full brightness

Wattage on Standby: <0.5W

Voltage Range: AC 100-240V 50/60 Hz

Color Temperature: 1500K - 9000K

Beam Angle: 210°

Dimming: Software dimming 1% - 100%

Wi-Fi Router Requirement: 802.11b,g,n standards compliant

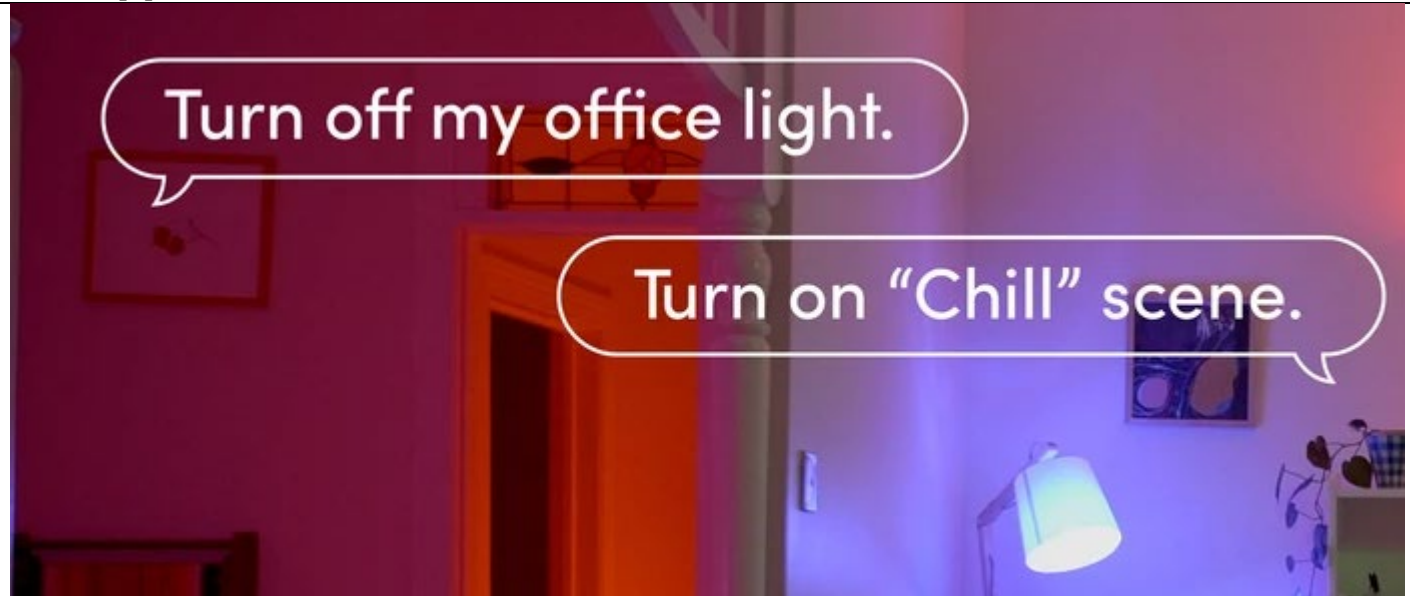
Security: WPA, WPA2

Product Dimensions: 2.48" x 2.48" x 4.53"

See, e.g., <https://www.lifx.com/products/lifx-color-a19?variant=39834390397109>.

As a Wi-Fi 802.11b, g, and n, compliant bulb, the LIFX Color light bulb is a household device connected to a network.

3[b]. “at least one household device connected to a network;”



See, e.g., <https://www.lifx.com/products/lifx-color-a19?variant=39834390397109>.

For example, Samsung advertises Bixby connects to all Samsung appliances.

Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

See, e.g., <https://news.samsung.com/us/injong-rhee-bixby-a-new-way-to-interact-with-your-phone/>

3[b]. “at least one household device connected to a network;”

Implementing JavaScript Actions

Functions are the implementations of actions. They actually execute the steps of a plan, by making computations or contacting external APIs. You first define inputs and outputs within an **action** first. You then implement functions using JavaScript to provide the necessary logic, operations, and to specify the same inputs and outputs as the action. **Local JavaScript is executed in the cloud on Bixby servers**, while remote JavaScript is executed on your own server.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/actions.js-actions>

Do I need Wi-Fi or mobile data to use Bixby?

Yes, to use Bixby, you must be connected to a mobile data or Wi-Fi network.

See, e.g., <https://www.samsung.com/ca/support/mobile-devices/questions-about-bixby/>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

3[c]. “a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices,”

3[c]. a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices,

Samsung is infringing, and has infringed, element 3[c] by making, using selling, offering to sell, or importing a system for remotely controlling household devices having a CPU-based device browsing server, connected with said media server and said network, as described in element 3[c].

The Samsung Accused Products include a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices.

See claim element 1[d].

Additionally, the CPU-based device browsing server allows access to at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices.

Control smart home devices with Google Assistant

You can control smart home devices including lights, switches, outlets, and thermostats using your Google Assistant.

Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

- "Hey Google, set the heat to 70."
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See, e.g., <https://support.google.com/assistant/answer/7314909?hl=en>.

3[c]. “a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices,”

With a little help from Google.

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For example, Google advertises many smart-home devices that are compatible with the Samsung Accused Products. One such device is the LIFX Color light bulb.

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LIFX Color

[Shop now >](#)

See, e.g., <https://assistant.google.com/smart-home/devices/lighting-plugs/>.

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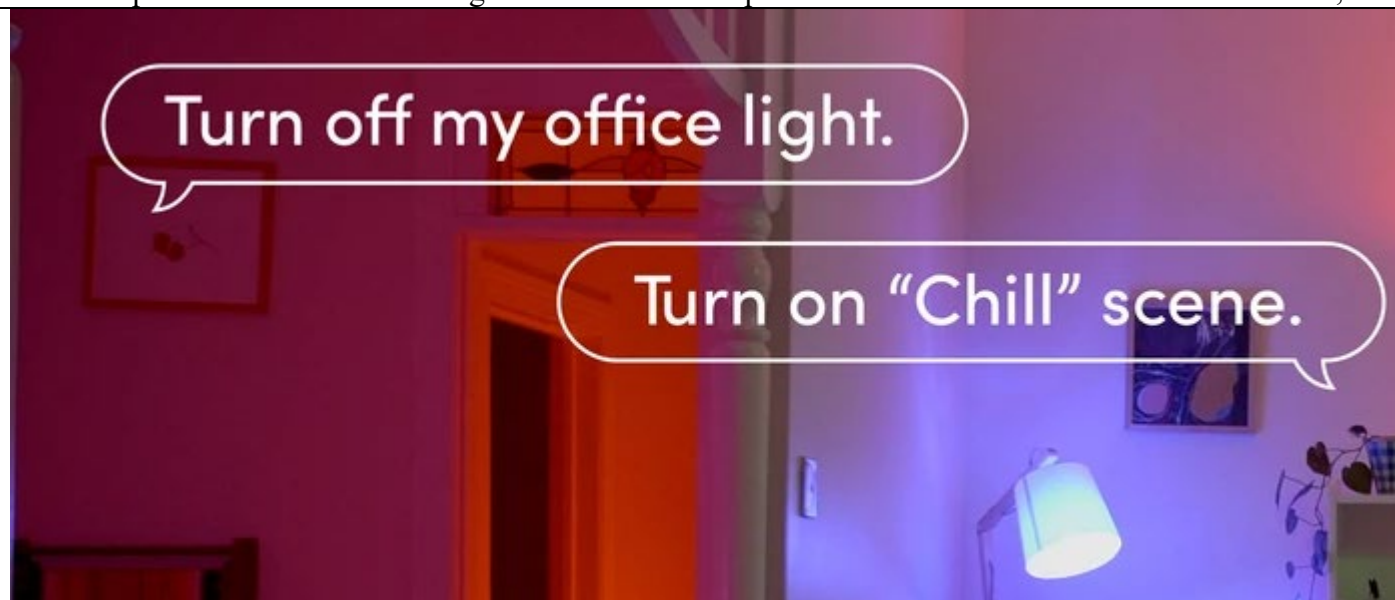
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As a Wi-Fi 802.11b, g, and n, compliant bulb, the LIFX Color light bulb is a household device connected to a network. The Samsung Accused Products allow access to the LIFX Color light bulb in response to speech commands to control the operation of the bulb.

3[c]. “a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices,”



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3[c]. “a CPU-based device browsing server, connected with said media server and said network, said device browsing server including at least a content extraction agent, a content fetcher, a polling agent, and a content descriptor file, said device browsing agent configured to access at least one of said household devices in response to said speech command and configured to control the operation of said one of said household devices,”

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3[d]. “a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device, and”

3[d]. a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device, and

Samsung is infringing, and has infringed, element 3[d] by making, using selling, offering to sell, or importing a system for remotely controlling household devices having a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device.

The Samsung Accused Products include a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device.

See claim element 1[f].

Further, on information and belief, similar to the polling mechanism in claim element 1[f], the Samsung Accused Products have a polling mechanism that periodically sends messages to each household device and to receive a response, in which the polling mechanism is configured to evaluate the response. This is evidenced by the fact that the Samsung Accused Products have the ability to send proactive notifications for smart home Actions during a device state change.

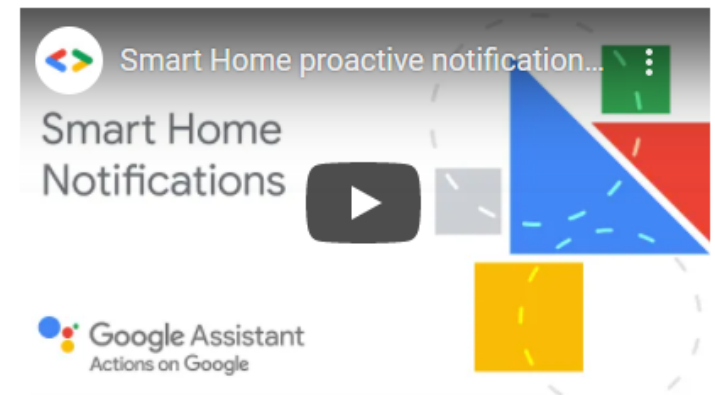
Notifications for smart home Actions

Notifications allow your smart home Action to use Google Assistant to communicate with users about important device-related events or changes. You can implement notifications to alert users to timely device events, for example when someone is at the door, or to report on a requested device state change, such as when a door lock bolt has been successfully engaged or has jammed.

Your smart home Action can send the following types of notifications to users:

- **Proactive notifications:** Alerts the user of a smart home device event without any preceding user requests to their devices, such as the doorbell ringing.

See, e.g., <https://developers.google.com/assistant/smarthome/develop/notifications>.



3[d]. “a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device, and”

Events that trigger notifications

When device events occur, your Action fulfilment sends a notification request to Google. The device traits that your smart home Action supports determines what types of notification events are available and the data you can include in those notifications.

The following traits support proactive notifications:

Trait	Events
ObjectDetection	Objects detected by the device, such as when a recognized face is detected at the door. For example: <i>"Alice and Bob are at the front door."</i>
RunCycle	Device completes a cycle. For example: <i>"The washing machine cycle has completed."</i>
SensorState	Device detects a supported sensor state. For example: <i>"The smoke detector detects smoke."</i>

See, e.g., <https://developers.google.com/assistant/smarthome/develop/notifications>.

The following traits support follow-up responses:

Trait	Events
LockUnlock	Completion status and state change following execution of the <code>action.devices.commands.LockUnlock</code> device command. For example: <i>"The front door has been locked"</i> or <i>"The front door is jammed."</i>
NetworkControl	Completion status and state change following execution of the <code>action.devices.commands.TestNetworkSpeed</code> device command. For example: <i>"Your network speed test has finished. The download speed on the office router is currently 80.2 Kbps, and the upload speed is 9.3 Kbps."</i>
OpenClose	Completion status and state change following execution of the <code>action.devices.commands.OpenClose</code> device command. For example: <i>"The front door has opened"</i> or <i>"The front door couldn't be opened."</i>

See, e.g., <https://developers.google.com/assistant/smarthome/develop/notifications>.

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is

3[d]. “a polling mechanism configured to periodically send a polling digital data message to each said household device and to receive a response, said polling mechanism configured to evaluate said response from a polled household device, and”

	different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.
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3[e]. “a warning mechanism configured to generate a warning message if said response data provided by said polled household device cannot be recognized by said polling mechanism.”

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Samsung is infringing, and has infringed, element 3[e] by making, using selling, offering to sell, or importing a system for remotely controlling household devices having a warning mechanism configured to generate a warning message if said response data provided by said polled household device cannot be recognized by said polling mechanism.

The Samsung Accused Products include a warning mechanism configured to generate a warning message if said response data provided by said polled household device cannot be recognized by said polling mechanism.

See claim element 1[f].

Further, on information and belief, similar to the polling mechanism in claim element 1[f], the Samsung Accused Products have a warning mechanism configured to generate a warning message if said response data provided by said polled household device cannot be recognized by said polling mechanism. This is evidenced by the fact that the Samsung Accused Products have the ability to send proactive notifications for smart home Actions during a device state change. On information and belief, if the Samsung Accused Products do not recognize the response data, they will generate a warning.

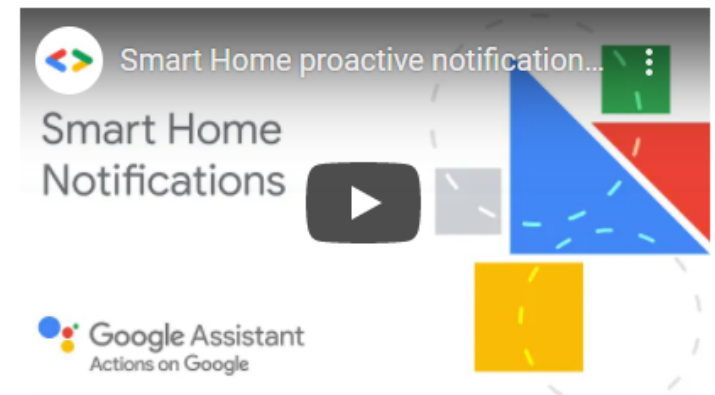
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3[e]. “a warning mechanism configured to generate a warning message if said response data provided by said polled household device cannot be recognized by said polling mechanism.”

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4[preamble]. “4. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:”

<p>4[preamble]. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:</p>	<p>To the extent that the preamble is a limitation, Samsung is infringing, and has infringed, by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs comprising the steps of claim 4 listed thereafter.</p> <p>The Samsung Accused Products meet this limitation when they are used for their intended and marketed purpose by Samsung, Google and/or third parties.</p> <p>For example, the following exemplary documents provide support to demonstrate the Google Assistant Product practices this claim:</p> <p>Andrew Nusca, <i>How voice recognition will change the world</i> (Nov. 4, 2011), available at https://www.zdnet.com/article/how-voice-recognition-will-change-the-world/.</p> <p>Gene Munster, Will Thompson, <i>Annual Digital Assistant IQ Test – Siri, Google Assistant, Alexa, Cortana</i> (Jul. 25, 2018), available at https://loupventures.com/annual-digital-assistant-iq-test-siri-google-assistant-alexa-cortana/.</p> <p>Extending the assistant (Jan. 29, 2019), available at https://developers.google.com/actions/extending-the-assistant.</p> <p>Voice Browsing (Jan. 29, 2019), available at https://www.w3.org/standards/webofdevices/voice.</p> <p>How Search organizes information (Jan. 29, 2019), available at https://www.google.com/search/howsearchworks/crawling-indexing/.</p> <p>Winston Chen, Speaking to the Web with the Web Speech API (Aug. 17, 2017), available at https://medium.com/samsung-internet-dev/speaking-to-the-web-with-the-web-speech-api-980d12d34244.</p> <p>Dieter Bohn, Here’s what we know Samsung’s Bixby assistant can do on the Galaxy S8 (Mar. 29, 2017), available at https://www.theverge.com/2017/3/29/15097744/samsung-bixby-galaxy-s8-assistant-vs-siri-alexa-android.</p> <p>On information and belief, there is no evidence to indicate that the relevant operation of Google Assistant and/or Bixby on the Samsung Accused Products is different from described herein. Rather, public information indicates that Bixby “essentially works the same way” as the Google Assistant.</p> <p>How Bixby works</p>
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4[preamble]. "4. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:"

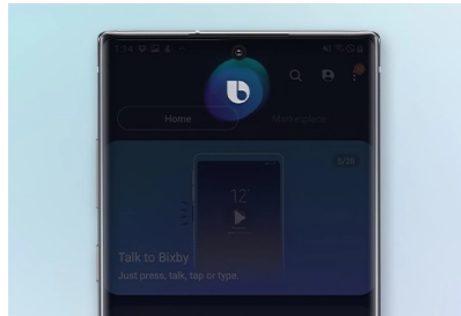
Bixby should also be able to understand natural language: this means that you don't need to use set phrases, but you can give incomplete information and Bixby can interpret and take action. Natural language recognition has been key to the rise of Alexa, for example, and is now a key element of modern AI.

The service essentially works in the same way as other AI solutions like Google Assistant or Amazon Alexa in that it listens to your voice, interprets the information, and returns the resulting action.

available at <https://www.pocket-lint.com/phones/news/samsung/140128-what-is-bixby-samsungs-assistant-explained-and-how-to-use-it>.

Change the AI assistant on your Galaxy phone

Last Update date : Oct 03, 2020



Bixby and Google Assistant are both handy AI programs that you can use on your phone, but you're not limited to those two - you can even set Samsung Internet as a phone assistant. Each assistant is awesome in its own way, but Bixby is made specifically for Galaxy phones and has its own special features. However, you can change the default assistant on your phone if you'd like.

available at <https://www.samsung.com/ca/support/mobile-devices/galaxy-phone-change-the-ai-assistant/>

4[preamble]. “4. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:”

What to know about Bixby

While Bixby is similar to Google Assistant (which is also available on Samsung devices), Bixby is found exclusively on Samsung devices — it's unavailable on any other Android brand. Samsung has included it on every new Samsung device, starting with the Galaxy S8 in 2017. In addition to phones and tablets, it's built into the Samsung Galaxy Watch and is the voice assistant in the Samsung Galaxy Home, a smart speaker that Samsung announced in 2018 but has still not been released.

available at <https://www.businessinsider.com/bixby>.

Bixby is an [artificial intelligence](#) (AI) system developed by Samsung Electronics to make [device](#) interaction easier and to avoid complexity of fully featured devices. Bixby is Samsung's very own virtual assistant and the electronics giant's new effort to offer an intelligent agent to compete with Google Assistant, Apple's Siri, and Amazon's Alexa. Like other voice-based virtual assistants out there, Bixby uses neural nets and [deep learning](#) to interpret what it should do based on what a person says or asks. It uses natural language processing to understand how we talk and what we mean. It basically means anyone with a Samsung smartphone or a Samsung TV will be able to use Bixby for a [wide](#) variety of tasks, queries, and capabilities, just like Google Assistant. Bixby is a major overhaul of the S Voice, the bundled voice command application that comes built-in with the Samsung Galaxy S5 and other devices.

– While both Google Assistant and Bixby have similar smart assistant features, Google Assistant is uniquely integrated with the Google Home ecosystem and is available for Android and iOS devices (limited functionality on iOS), whereas Bixby is specific to Samsung devices and apps. Bixby is tied to the Samsung's SmartThings hub and has

4[preamble]. "4. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:"

While both Google Assistant and Bixby are pretty much the same, when it comes to basic functionalities like executing voice commands to perform a wide range of tasks, Google Assistant is tied to the Google Home ecosystem, whereas Bixby is limited to the Samsung universe. Google Assistant also uses other services from the Alphabet/Google Company, as available at <http://www.differencebetween.net/technology/difference-between-google-assistant-and-bixby/>.

If you are using a Samsung device for the first time, you might be surprised to learn that Samsung has its own voice assistant similar to Apple's Siri, Amazon's Alexa, and [Google Assistant](#). It's called Bixby and is built into many Samsung devices. It works like any of those other voice assistants, so you can use it to answer questions, perform common commands, and automate tasks that you frequently perform with your phone.

available at <https://www.businessinsider.com/bixby>.

First of all, both Google Assistant and Bixby supports voice and keyboard input to ask queries and questions. With Google Assistant, you can send a message, open an app, check weather, and even send a WhatsApp message.

available at <https://techwiser.com/bixby-vs-google-assistant-comparison>.

See claim 1[preamble].

Further, the Samsung Accused Products allow one to control smart home devices with Google Assistant.

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See, e.g., <https://assistant.google.com/smart-home/>.

4[preamble]. "4. A method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs, comprising the steps of:"

Discover smart home devices.

Find smart home devices from thousands of brands. With Google, devices can work together to save time, lower energy bills, and help keep you safer.

Lighting and Plugs

Climate and Energy

Security and Awareness

Entertainment

Appliances and More

See, e.g., <https://assistant.google.com/smart-home/>.

Explore smart lighting and plugs.

Look for the Works with Hey Google badge in stores and online.



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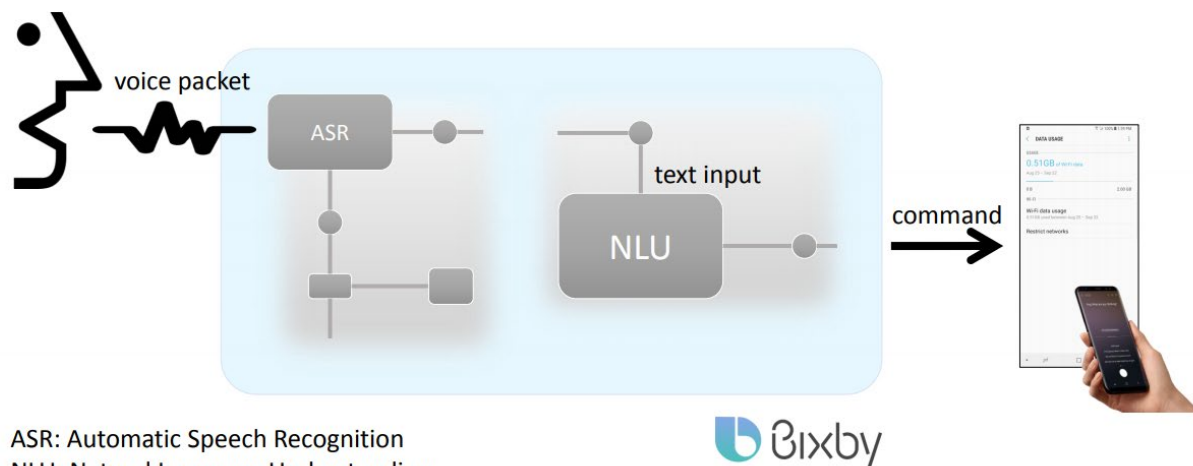


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Bixby v1.0: Minimalistic View

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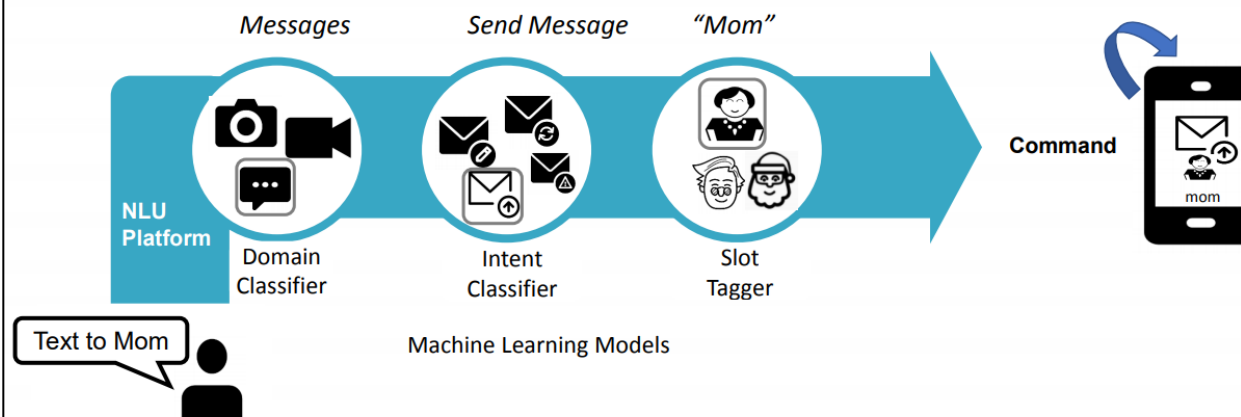
ASR: Automatic Speech Recognition
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Traditional NLU Flow

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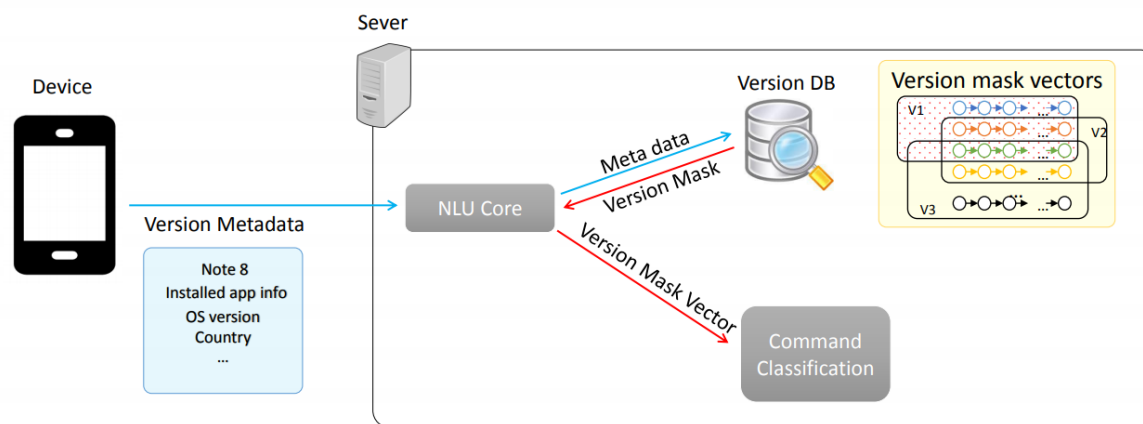


See, e.g., *id.* at 10.

Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



See, e.g., *id.* at 21.

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Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

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At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet the preamble. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in the preamble or remainder of the claim that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet the preamble under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the preamble is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the preamble.

4[a]. "receiving at a user interface system a speech command from a user;"

4[a]. receiving at a user interface system a speech command from a user;

Samsung is infringing, and has infringed, element 4[a] by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs that includes the step of receiving at a user interface system a speech command from a user.

The Samsung Accused Products include receiving at a user interface system a speech command from a user.

For example, the Samsung Accused Products with Google Assistant, a cloud-based digital assistant, allow a user to send spoken speech commands.

Control smart home devices with Google Assistant

You can control smart home devices including lights, switches, outlets, and thermostats using your Google Assistant.

Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

- "Hey Google, set the heat to 70."
- "Hey Google, turn on lights in the kitchen."

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Ask Google to control smart devices in your home. No
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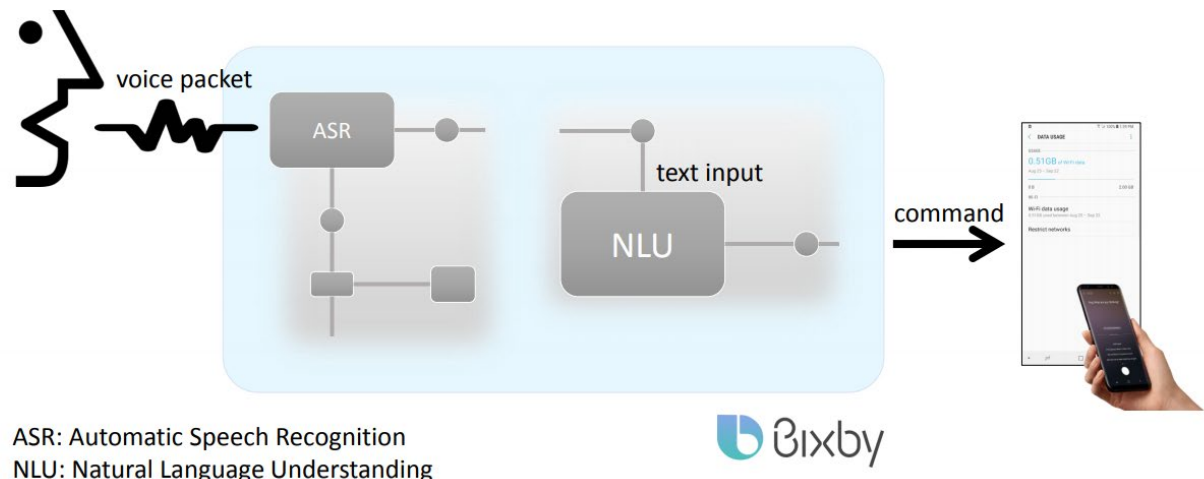
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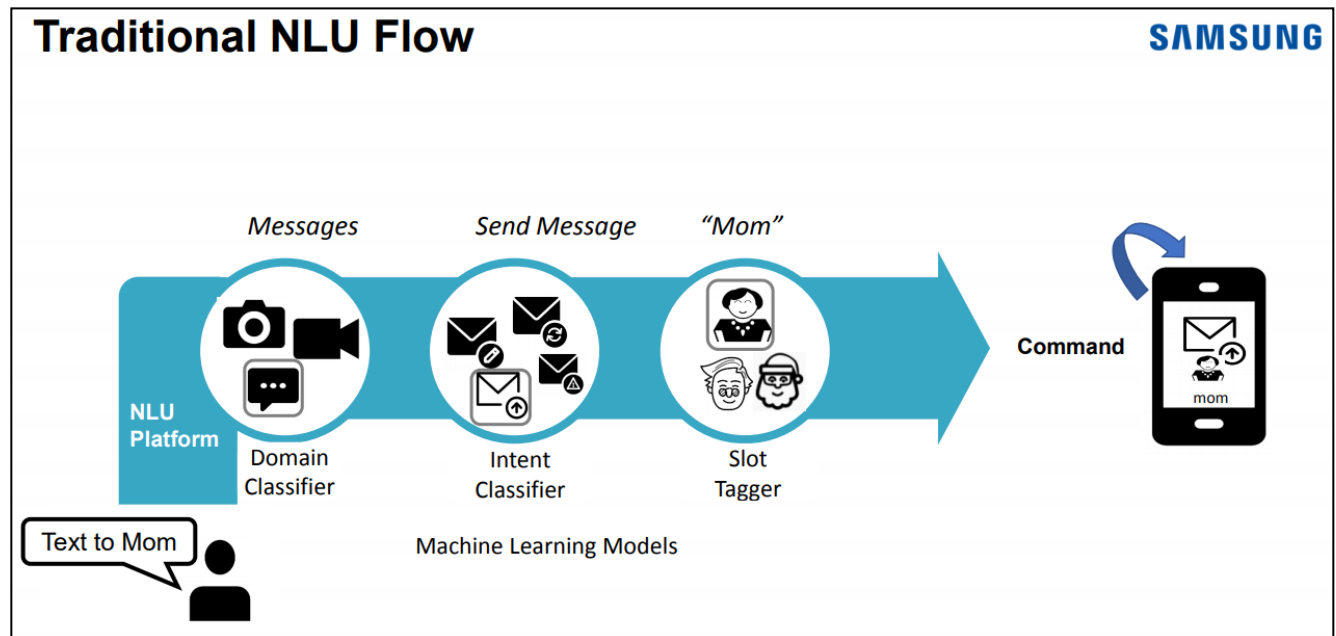
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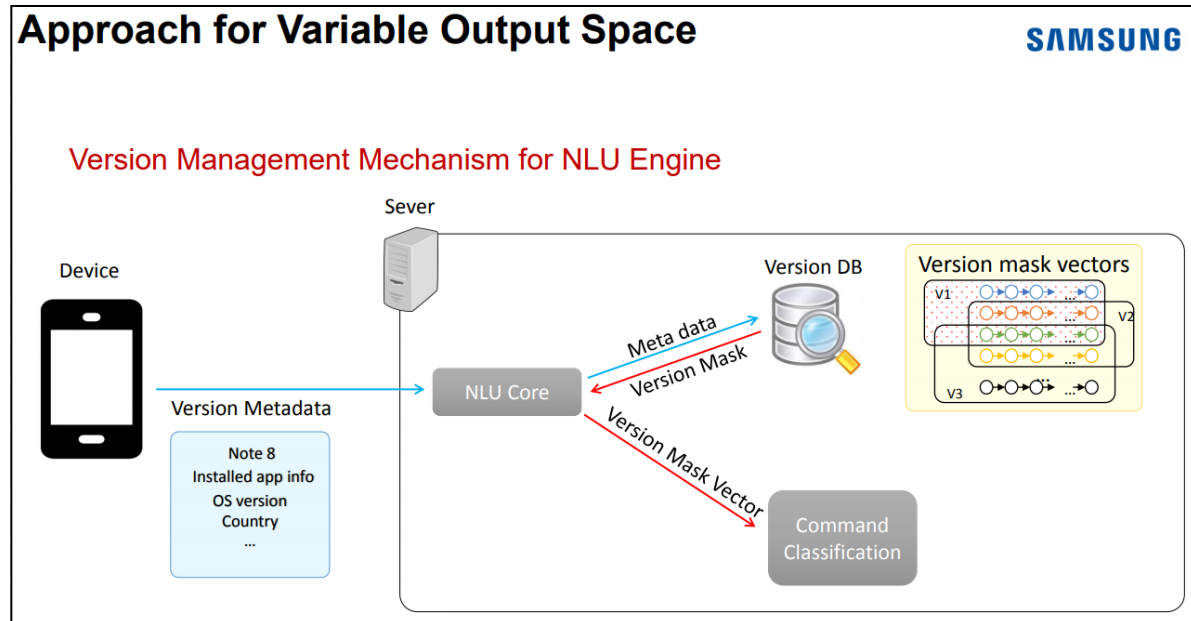


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See, e.g., *id.* at 10.



See, e.g., *id.* at 21.

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Starting with our smartphones, Bixby will be gradually applied to all our appliances. In the future you would be able to control your air conditioner or TV through Bixby. Since Bixby will be implemented in the cloud, as long as a device has an internet connection and simple circuitry to receive voice inputs, it will be able to connect with Bixby. As the Bixby ecosystem grows, we believe Bixby will evolve from a smartphone interface to an interface for your life.

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What to Know About Bixby

Doesn't have a gender. Bixby has neither gender nor sex and does not identify with any sexual orientation.

Does not possess a body. Bixby doesn't have a physical presence and is not human.

Lives in the cloud. Bixby does not have a physical location.

But knows what's going on in the world. Bixby can make pop culture and news references.

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/design-guides/writing>

Research Phase

While you're creating your own capsule, narrow down what you want the user to be able to accomplish through Bixby while using their device and the cloud platform. Essentially, you're asking "What ability do I want to teach Bixby?"

See, e.g., <https://bixbydevelopers.com/dev/docs/dev-guide/developers/managing-caps.planning-external>

4[a]. "receiving at a user interface system a speech command from a user;"

For example, `spaceResorts`, local JavaScript files include all the necessary **action implementations** for each of the actions modeled, even sorting the various `*.js` files the same way as the action models. **JavaScript in this capsule is executed in the cloud through Bixby servers**, though JavaScript can also be executed on your server if your capsule uses remote **endpoints**. Additionally, the objects being returned from the calls are also in local JSON files, under the `code/lib` directory.

See, e.g., <https://bixbydevelopers.com/dev/docs/sample-capsules/walkthroughs/space-resorts>

Implementing JavaScript Actions

Functions are the implementations of actions. They actually execute the steps of a plan, by making computations or contacting external APIs. You first define inputs and outputs within an **action** first. You then implement functions using JavaScript to provide the necessary logic, operations, and to specify the same inputs and outputs as the action. **Local JavaScript is executed in the cloud on Bixby servers**, while remote JavaScript is executed on your own server.

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Q. Will using Bixby eat up my mobile data, and is it possible to use it overseas?

Bixby only utilizes your mobile data when listening to a command, not before or after. As a result, the length of the command ultimately determines the amount of mobile data used.

See, e.g., <https://news.samsung.com/global/bixby-101-get-to-know-the-ins-and-outs-of-samsungs-intelligent-interface>

Do I need Wi-Fi or mobile data to use Bixby?

Yes, to use Bixby, you must be connected to a mobile data or Wi-Fi network.

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Bixby uses natural language (NL) from the user as input. You can improve Bixby's ability to understand NL input by training Bixby to understand real-world examples of natural language in Bixby Developer Studio (Bixby Studio). For example, in the [Quick Start Guide](#), you train the dice game to recognize "roll 2 6-sided dice". This phrase is an **utterance**. NL training is based on utterances that humans might type or say when interacting within Bixby. Utterances don't have to be grammatical and can include slang or colloquial language.

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Using SSML

Bixby's dialog can include a subset of tags from [Speech Synthesis Markup Language \(SSML\)](#), a W3C standard for enriching text-to-speech.

To use SSML, you must observe the following rules:

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- The speech string **must** be enclosed in quote marks, and quotes inside the string **must** be escaped with a `\` character.

See, e.g., <https://bixbydevelopers.com/dev/docs/reference/ref-topics/ssml>

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Bixby Voice is easily activated. Users simply need to press and hold the dedicated hardware button on the side of the Galaxy S8, say "Bixby" or tap it on the Bixby Home screen to wake it up.

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Speak naturally.

Bixby understands natural, conversational language along with context, like the email you're reading or the photo you just took. Simply talk the way you would to a friend to get what you need.

See, e.g., <https://www.samsung.com/us/explore/bixby/>

Make things happen.

Just say what you want, and Bixby will deliver. Sure you can ask for dinner reservation, but you can also call a ride all with your voice.

See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/>

4[a]. “receiving at a user interface system a speech command from a user;”



“What’s the status of flights from SFO to LAX?”

See, e.g., id.



“What’s the time difference between Paris and Seoul?”

See, e.g., id.

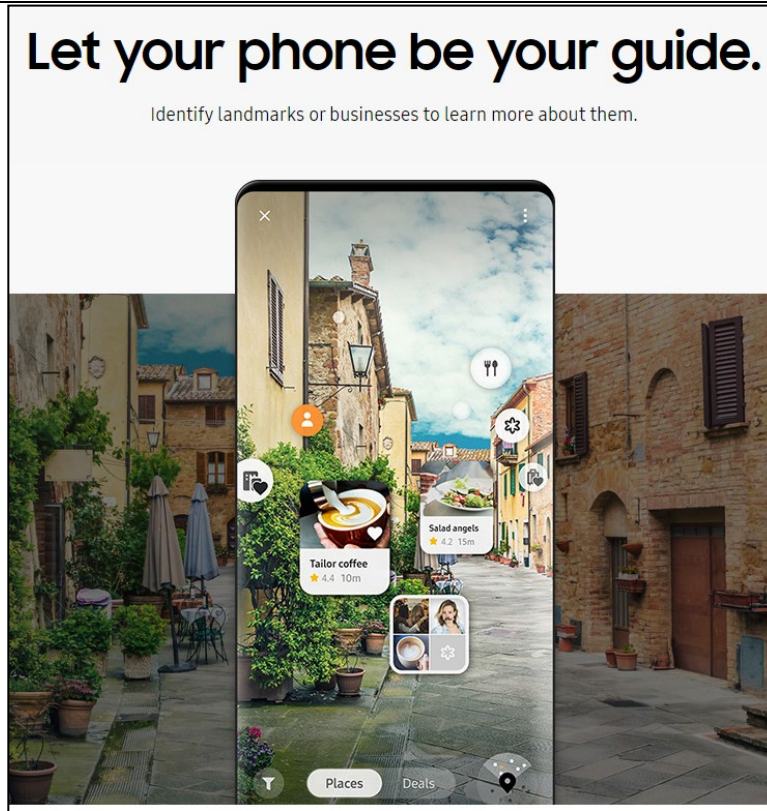
4[a]. “receiving at a user interface system a speech command from a user;”



“Give me the directions to 645 Clyde Ave.”

See, e.g., id.

4[a]. "receiving at a user interface system a speech command from a user;"



See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/vision/>

4[a]. "receiving at a user interface system a speech command from a user;"

You can search the internet

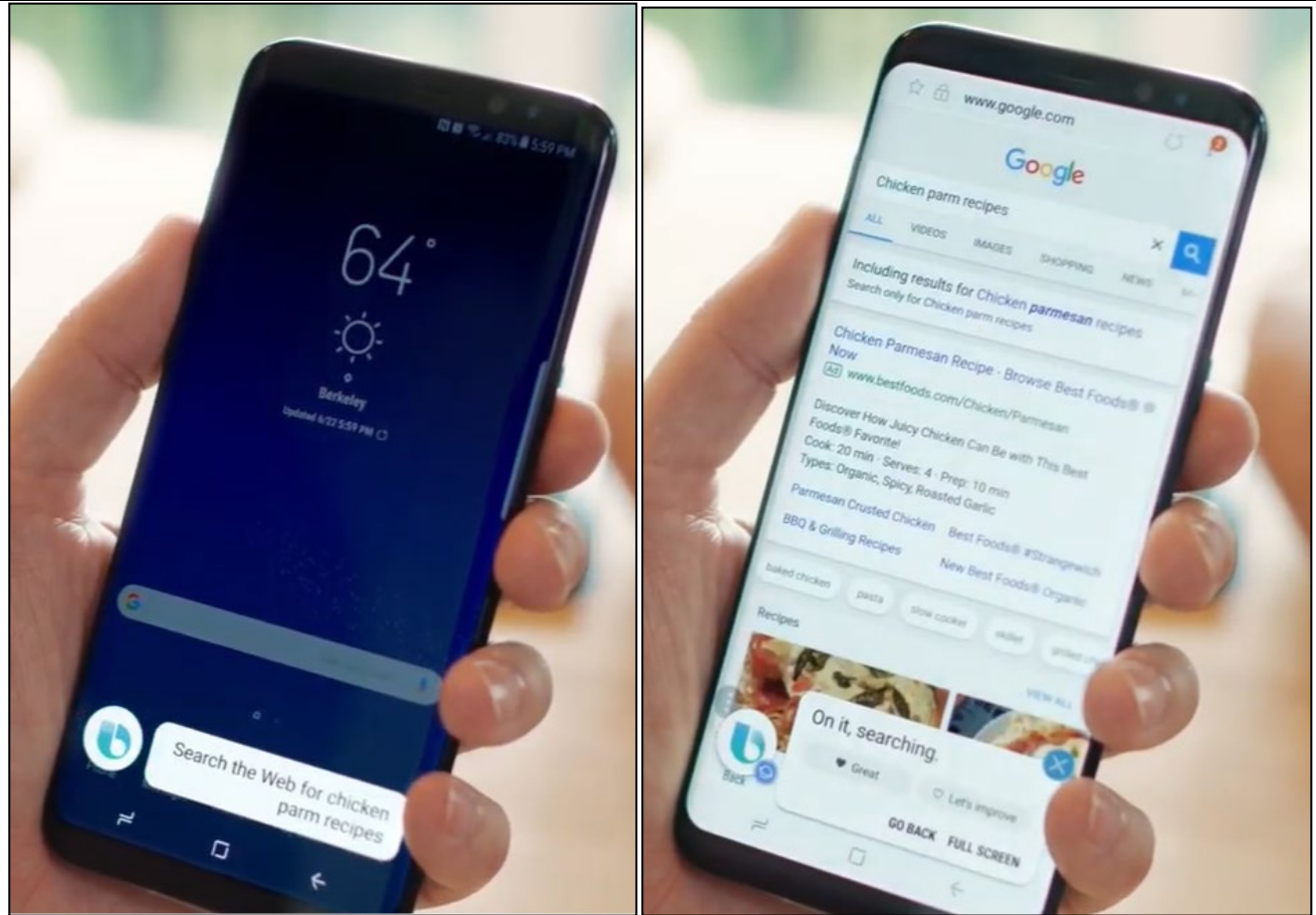
Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>

4[a]. “receiving at a user interface system a speech command from a user;”



See, e.g., <https://www.youtube.com/watch?v=xISIM1-77TQ>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

4[b]. “providing at least one household device connected to a network,”

4[b]. providing at least one household device connected to a network,

Samsung is infringing, and has infringed, element 4[b] by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs that includes the step of providing at least one household device connected to a network.

The Samsung Accused Products include providing at least one household device connected to a network.

See claim element 3[b].

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

4[c]. “accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device;”

4[c]. accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device;

Samsung is infringing, and has infringed, element 4[c] by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs that includes the step of accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device.

The Samsung Accused Products include accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device.

For example, through Google Assistant, the Samsung Accused Products can remotely control household devices through using speech commands.

Control smart home devices with Google Assistant

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Use your Google Assistant

Important: The languages you can use depend on the device. [Learn which languages work on your device.](#)

For example, you can say:

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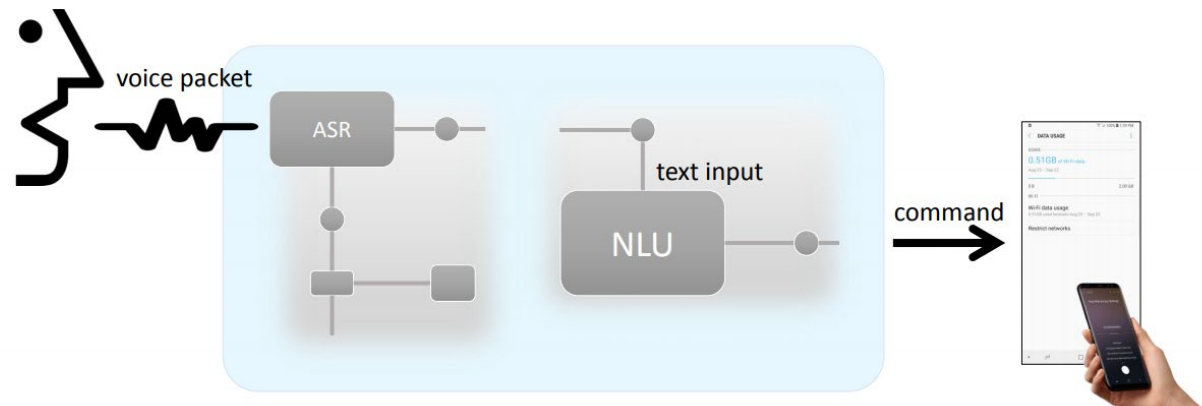
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Bixby v1.0: Minimalistic View

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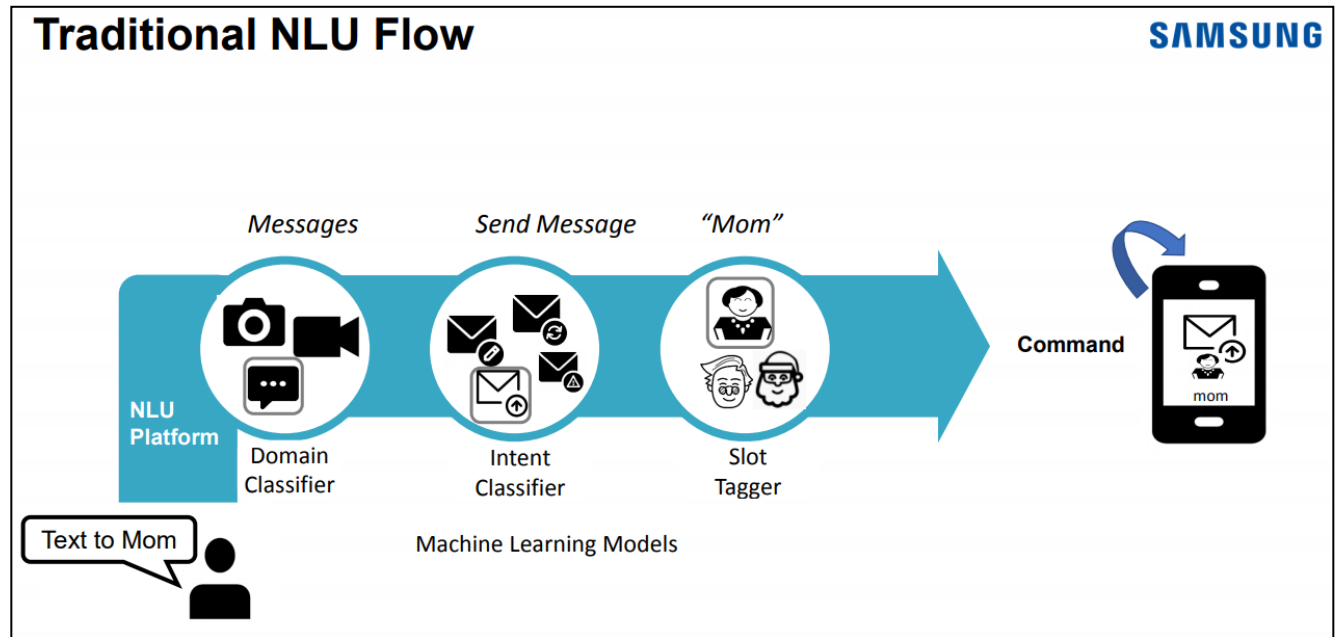


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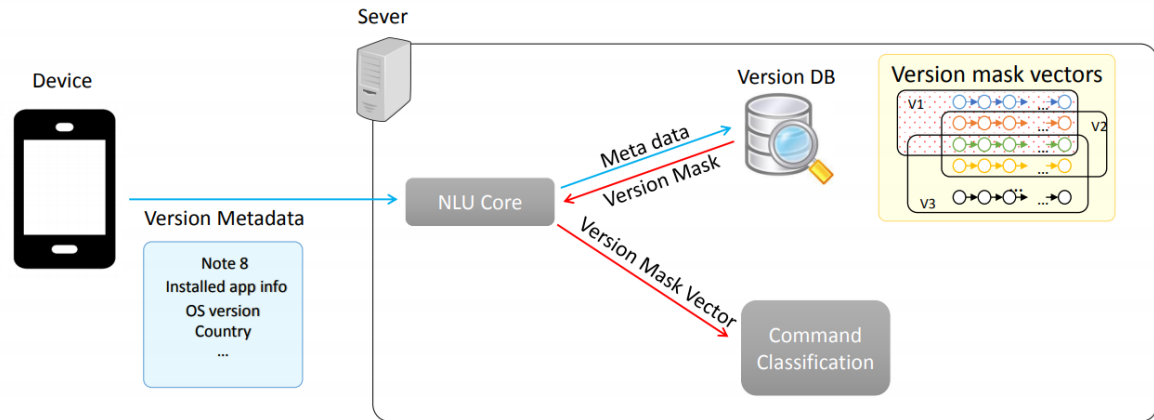
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Approach for Variable Output Space

SAMSUNG

Version Management Mechanism for NLU Engine



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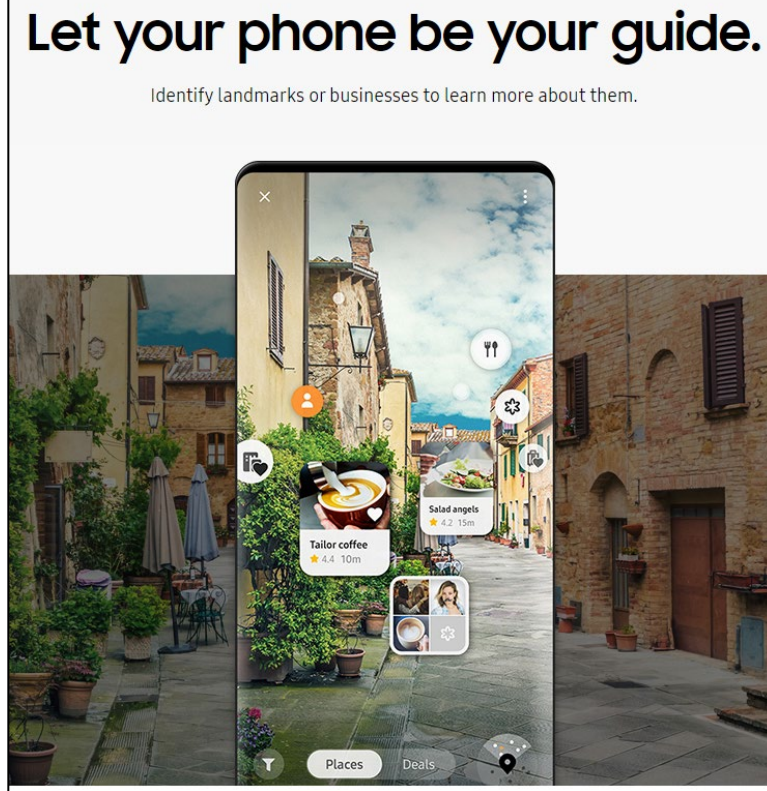
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“Give me the directions to 645 Clyde Ave.”

See, e.g., id.

4[c]. "accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device;"



See, e.g., <https://www.samsung.com/global/galaxy/apps/bixby/vision/>

4[c]. "accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device;"

You can search the internet

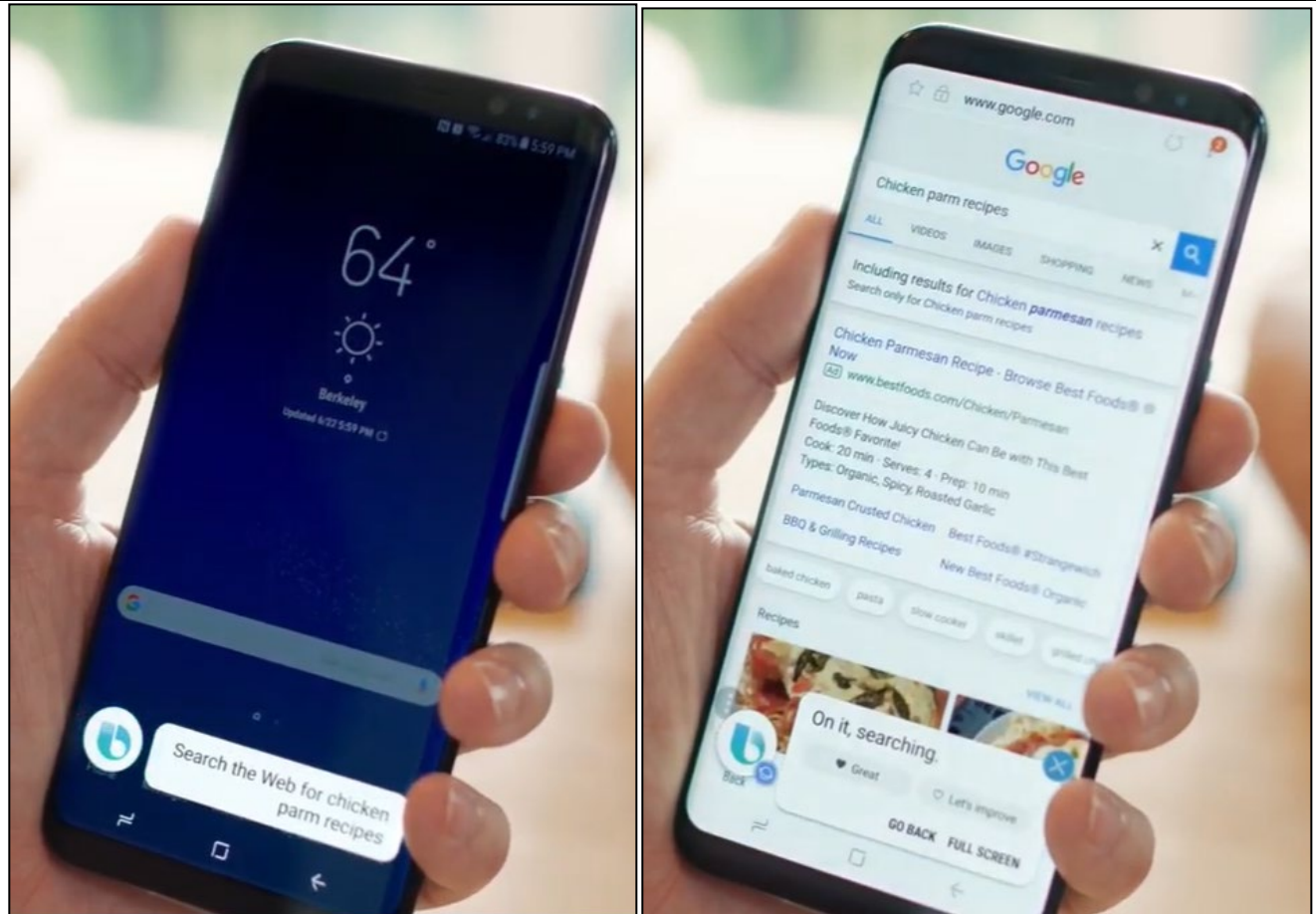
Samsung recommends using the phrase "Open Samsung Internet" to search for what you want, but I was able to ask:

- When was the Empire State Building constructed?
- When does the sun set in San Francisco tonight?
- What is the Giants' score?

And see Google results.

See, e.g., <https://www.cnet.com/news/samsung-galaxy-s8-bixby-voice-hands-on/>

4[c]. “accessing by a CPU-based network interface system at least one said household device in response to said speech command in order to control the operation of said one household device;”



See, e.g., <https://www.youtube.com/watch?v=xISIMI-77TQ>

At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.

4[d]. “polling each said household device and attempting to recognize response data received from each polled household device; and”

<p>4[d]. polling each said household device and attempting to recognize response data received from each polled household device; and</p>	<p>Samsung is infringing, and has infringed, element 4[d] by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs that includes the step of polling each said household device and attempting to recognize response data received from each polled household device.</p> <p>The Samsung Accused Products includes polling each said household device and attempting to recognize response data received from each polled household device.</p> <p><i>See</i> claim element 3[d].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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4[e]. “generating a warning message if said response data provided by said polled household device cannot be recognized.”

<p>4[e]. generating a warning message if said response data provided by said polled household device cannot be recognized.</p>	<p>Samsung is infringing, and has infringed, element 4[e] by performing a method for remotely controlling household devices, including security systems, lighting systems, heating and air conditioning systems, TVs, or VCRs that includes the step of generating a warning message if said response data provided by said polled household device cannot be recognized.</p> <p>The Samsung Accused Products include generating a warning message if said response data provided by said polled household device cannot be recognized.</p> <p><i>See</i> claim element 3[e].</p> <p>At the present time, prior to discovery commencing, Parus contends that the Samsung Accused Products literally meet this claim limitation. However, if discovery reveals that the Samsung Accused Products do not operate in the manner described herein, or if the Court provides a construction for any term contained in this limitation that is different than the construction proposed by Parus, then Parus reserves its right to contend that the Samsung Accused Products meet this claim limitation under the doctrine of equivalents, i.e., Parus reserves the right to contend that any difference between the Samsung Accused Products and the claim limitation is insubstantial and/or that the Samsung Accused Products perform substantially the same function in substantially the same way to obtain the same result as the claim limitation.</p>
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